



Water Policy, Tourism, and Recreation

Lessons from Australia

Edited by Lin Crase
Sue O'Keefe

THE RFF PRESS WATER POLICY SERIES

First published 2011 by RFF Press
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

Simultaneously published in the USA and Canada
by RFF Press
711 Third Avenue, New York, NY 10017

RFF Press is an imprint of Taylor & Francis Group, an informa business

Copyright © RFF Press 2011

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, except as expressly permitted by law, without the prior, written permission of the publisher.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data

Water policy, tourism, and recreation : lessons from Australia / edited By Lin Crase and Suzanne O'Keefe.

p. cm.

Includes bibliographical references and index.

ISBN 978-1-61726-087-2 (hardback)

1. Tourism—Environmental aspects—Australia. 2. Water—Government policy—Australia. I. Crase, Lin. II. O'Keefe, Suzanne.

G156.5.E58W37 2011

333.91—dc22

2010049787

ISBN: 978-1-61726-087-2

Copiedited by Joyce Bond
Typeset by OKS Prepress Services
Cover design by Maggie Powell
Printed and bound in the UK by Antony Rowe



The paper used is FSC certified.

The findings, interpretations, and conclusions offered in RFF Press publications are those of the authors. They do not necessarily represent the views of Resources for the Future, its directors, or its officers. Similarly, any geographic boundaries and titles depicted in RFF Press publications do not imply any judgment or opinion about the legal status of a territory on the part of Resources for the Future.

About Resources for the Future and RFF Press

Resources for the Future (RFF) improves environmental and natural resource policymaking worldwide through independent social science research of the highest caliber. Founded in 1952, RFF pioneered the application of economics as a tool for developing more effective policy about the use and conservation of natural resources. Its scholars continue to employ social science methods to analyze critical issues concerning pollution control, energy policy, land and water use, hazardous waste, climate change, biodiversity, and the environmental challenges of developing countries.

RFF Press supports the mission of RFF by publishing book-length works that present a broad range of approaches to the study of natural resources and the environment. Its authors and editors include RFF staff, researchers from the larger academic and policy communities, and journalists. Audiences for publications by RFF Press include all of the participants in the policymaking process—scholars, the media, advocacy groups, NGOs, professionals in business and government, and the public. RFF Press is an imprint of **Earthscan**, a global publisher of books and journals about the environment and sustainable development.

Resources for the Future

Directors

Vicky A. Bailey	David G. Hawkins	Michael A. Mantell
Trudy Ann Cameron	Deborah Hechinger	Peter J. Robertson
Preston Chiaro	Peter R. Kagan	Richard Schmalensee
Mohamed T. El-Ashry	Rubén Kraiem	Robert N. Stavins
Linda J. Fisher	Lawrence H. Linden	Joseph Stiglitz
Kathryn S. Fuller	Frank E. Loy	Mark R. Tercek

Officers

W. Bowman Cutter, Chair
John M. Deutch, Vice Chair
Daniel C. Esty, Vice Chair
Frank E. Loy, Vice Chair
Philip R. Sharp, President
Edward F. Hand, Vice President—Finance and Administration
Laurel L. Harvey, Vice President—Development and Corporate Secretary
Mark A. Cohen, Vice President—Research

Editorial Advisers for RFF Press

Walter A. Rosenbaum, University of Florida
Jeffrey K. Stine, Smithsonian Institution

The RFF Press Water Policy Series

Books in the *RFF Press Water Policy Series* are intended to be accessible to a broad range of scholars, practitioners, policymakers, and general readers. Each book focuses on critical issues in water policy with the mission to draw upon and integrate the best scholarly and professional expertise concerning the physical, ecological, economic, institutional, political, legal, and social dimensions of water use. The interdisciplinary approach of the series, along with an emphasis on real world situations and on problems and challenges that recur globally, are intended to enhance our ability to apply the full body of knowledge that we have about water resources—at local, country, regional, and international levels.

We welcome new contributions to the series. For editorial queries about the *RFF Press Water Policy Series*, please write to waterpolicy@rff.org.

Contributors

Sabine Albouy
Student Intern CSIRO Ecosystem Science
Agro Paris Tech

Dr. May Carter
School of Natural Sciences
Edith Cowan University

Dr. Bethany Cooper
Associate Lecturer
Regional School of Business
Faculty of Law and Management
La Trobe University

Lin Crase
Professor of Applied Economics
Executive Director
Albury-Wodonga Campus
La Trobe University

Brian Dollery
Professor of Economics
Director of the UNE Centre for Local Government
School of Business, Economics and Public Policy
University of New England

Dr. Ronlyn Duncan
Lecturer in Water Management
Lincoln University
Christchurch, New Zealand

Dr. Ben Gawne
Director
The Murray-Darling Freshwater Research Centre
La Trobe University

Fiona Haslam McKenzie
Professorial Fellow
Curtin Graduate School of Business
Curtin University

Dr. Darla Hatton MacDonald
Senior Research Scientist, CSIRO Ecosystem Science
Adjunct Research Fellow, Charles Sturt University

Simon Hone
Senior Research Economist, Productivity Commission
PhD Student, La Trobe University

Dr. Pierre Horwitz
Associate Professor and Postgraduate Coordinator
School of Natural Sciences
Edith Cowan University

Dr. Michael Hughes
Senior Research Fellow
Curtin Sustainable Tourism Centre
Curtin University

Colin Ingram
Director
Resolve Global Pty Ltd

Glen Jones
General Manager of the Boating Industry Association of South Australia Inc.

Dr. Sue O’Keefe
Associate Professor and Associate Head
Regional School of Business
Faculty of Law and Management
La Trobe University

Audrey Rimbaud
Student Intern CSIRO Ecosystem Science
Agro Paris Tech

Professor David G Simmons
Director Research Strategy and Development
Research and Commercialisation Office
Professor of Tourism
Faculty of Environment, Society and Design
Lincoln University, New Zealand

Dr. Sorada Tapsuwan
Research Scientist, CSIRO Ecosystem Science

Foreword

“**T**he state of the art [of water management] is always provisional ... something that historians know well but hydrological engineers found harder to accept.” So Harvard historian David Blackbourn, in *The Conquest of Nature: Water, Landscape, and the Making of Modern Germany* (2006), describes the evolution of water management over 300 years in Prussia, from a starting point where Dutch engineers helped drain a swamp and made the land livable to an endpoint where Germany’s Greens defend the maintenance of “the natural landscape” today.

Stimulated by the National Competition Policy, over the past two decades Australia has undertaken the most ambitious and successful set of water reforms in the world. Against the backdrop of a drought of unprecedented brutality, the reforms have proved to be spectacularly technically successful (with minor drops in the value of agricultural output), yet hugely politically vulnerable. This paradox seems to have two causes. First, in the modern world, if anything is not right—and the state of the environment in southeast and southwest Australia certainly has not been right—then popular sentiment is that humans must have done something wrong. And second, although a perusal of the Australian section of any bookstore in the country will show that images of rugged farmers remain a powerful national symbol, agriculture now plays a much smaller demographic, economic, and value role in Australian society. A corollary is that there is a rising concern with the environment and with services to which the environment contributes, including tourism and recreation.

Australia is now in the midst of a massive rethink of its water management model. As is natural, but dangerous, there is a tendency to rely on (again in Blackbourn’s words) “a series of confident prescriptions ... [that] promises to turn the trick and finally overcome the ignorance, or engineering mistakes, or political constraints of earlier generations.” The legislative manifestation of this rethink is the Water Act of 2007, which has several notable features. First, it uses an environmental fig leaf—the Ramsar Convention on Wetlands—for the federal government to take over water management functions that are constitutionally in state hands. Second, it gives absolute priority to environmental uses, allowing

humans to do their best with what is left. And third, it gives pride of place to “best available science” as the oracle that will tell what the environment needs.

Whether these reforms will build on the remarkable foundation laid by the generation of reforms stimulated by the National Competition Policy is a big question, as is the judgment that posterity will pass on this generation of reforms. But what is ineluctable is that Australian society has “moved on,” giving much higher priority than did previous, poorer generations to the environment and related issues.

Among these related issues are two—recreation and tourism—that are of great and growing value to a society in which the right to leisure is of large and increasing importance. This book sets its sights squarely on these two issues. Building heavily on the achievements—and challenges—of the National Competition Policy generation of water reforms, an eminent group of authors expands the existing framework so that tourism and recreation benefits can find their rightful place alongside the clearly economic (water for agriculture, hydropower, and industry) and clearly social (water for people) uses of water.

Against the many challenges besetting water policy formulation in Australia, a book dealing with the tourism and recreational interests in water is particularly timely. It also provides a useful context for investigating broader public policy issues that are likely to resonate with a wider audience. Accordingly, the book examines many of the political, social, economic, and other influences that have impacts on the difficult decisions surrounding the reallocation of scarce resources. This book provides a theoretical analysis of institutional lessons and delves into the nexus between the politics and knowledge of water. Using these discussions as a backdrop, it then draws lessons from a number of practical examples. It also addresses challenges of valuation in the face of changing preferences and trade-offs between ecosystem services and the management of water resources for tourism and recreation in urban settings.

The subject matter of the book is of great relevance to the evolution of water policy and practice in Australia today. And because Australian water policy has also become a global standard, the book is of high relevance to other developed countries, which face similar issues today, as well as developing countries, which will face them in the future.

John Briscoe
Gordon McKay Professor of the Practice of Environmental Engineering
Harvard University
Former Senior Water Advisor, World Bank

Acknowledgments

The research described in this book was funded by the Sustainable Tourism Cooperative Research Centre, established and supported under the Australian government's Cooperative Research Centres program. Thanks go to the members of the industry reference group who generously gave their time to the project. The reference group comprised representatives from CSIRO, Parks Victoria, Australian Anglers Association–Victorian Division, Boat Owners Association of NSW Inc., SA Tourism, Tourism Industry Council, Tasmania, Victorian Water Industry Association, Resolve Global/Murdoch University, Griffith University, and South Australian Tourism Industry Council.

Thanks also go to Seamus Bromley and Steven Gibbs for their assistance with the preparation of this manuscript.

Acronyms and Abbreviations

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AMIF	Australian Marine Industries Federation
AWC	Australian Wildlife Conservancy
BIASA	Boating Industry Association of South Australia
CALM	Conservation and Land Management
CAWS	Country Areas Water Supply
CBD	central business district
CE	choice experiments
CGE	computable general equilibrium
CLLMM	Coorong, Lower Lakes, and Murray Mouth
CM	choice modeling
CoPS	Centre of Policy Studies
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CVM	contingent valuation method
CWA	Clean Water Act
DEC	Department of Environment and Conservation
DMC	Drought Monitoring Center
DoW	Department of Water
ENSO	El Niño/Southern Oscillation
EPA	US Environmental Protection Agency

GDP	gross domestic product
ha	hectare(s)
HPM	hedonic pricing method
IBT	inclining block tariff
IO	input–output
IPART	Independent Pricing and Review Tribunal
km	kilometer(s)
km ²	square kilometer(s)
KNP	Kruger National Park
LRMC	long-run marginal cost
LWD	large woody debris
m	meter(s)
m ²	square meter(s)
MA	Millennium Ecosystem Assessment
MDB	Murray–Darling Basin
MDBA	Murray–Darling Basin Authority
MWSSD	Metropolitan Water Supply, Sewerage and Drainage
MWWG	Murray Wetlands Working Group
NCC	National Competition Council
NIMBY	not in my backyard
NMMA	National Marine Manufacturers Association
NOAA	US National Oceanic and Atmospheric Administration
NSW	New South Wales
NWC	National Water Commission
NWI	National Water Initiative
OT	Oregon Trout
OWT	Oregon Water Trust
PDWSA	public drinking water source area
PEAC	Pacific ENSO Applications Center
QLD	Queensland
RP	revealed preference
SA	South Australia

SADC	Southern African Development Community
SARCOF	Southern African Regional Climate Outlook Forum
SD	Statistical Division
SP	stated preference
SRMC	short-run marginal cost
STS	science and technology studies
TCM	travel cost method
TERM	The Enormous Regional Model
TEV	total economic value
USAPI	United States Affiliated Pacific Islands
WA	Western Australia
WTA	willingness to accept
WTP	willingness to pay

Contents

<i>Figures, Tables, and Boxes</i>	<i>ix</i>
<i>Contributors</i>	<i>xi</i>
<i>Foreword by John Briscoe</i>	<i>xiii</i>
<i>Acknowledgments</i>	<i>xv</i>
<i>Acronyms and Abbreviations</i>	<i>xvi</i>
Part I: Context, Values, and Trade-offs	1
1. The Policy Landscape and Challenges for Tourism and Recreation in Australia	3
<i>Lin Crase, Sue O'Keefe, and David Simmons</i>	
2. The Environmental Status of Australia's Rivers: A Production Systems Perspective	17
<i>Simon Hone</i>	
3. Challenges of Estimating the Value of Tourism and Recreation in the Murray-Darling Basin	33
<i>Darla Hatton MacDonald, Sorada Tapsuwan, Sabine Albouy, and Audrey Rimbaud</i>	
4. Access to Inland Waters for Tourism: Ecosystem Services and Trade-offs	52
<i>Pierre Horwitz and May Carter</i>	
Part II: Property Rights and Institutional Arrangements	67
5. Why Rights Matter	69
<i>Lin Crase and Ben Gawne</i>	

6. Institutional Considerations for Collaborative Behavior
in Tourism and Recreation 82
Brian Dollery and Sue O’Keefe

7. Collaborating and Coordinating Disparate Interests:
Lessons from Water Trusts 100
Sue O’Keefe and Brian Dollery

Part III: Practical Challenges and Policy Formulation..... 113

8. The Swan River: Look but Do Not Touch 115
Fiona Haslam McKenzie

9. Recreational Access to Urban Water Supplies 132
Michael Hughes and Colin Ingram

10. Cases in Policy Suasion and Influence: The Boating Industry 148
Sue O’Keefe and Glen Jones

11. Science, Policy, and Knowledge: Is There a Better Way
for the Tourism and Recreation Sector? 157
Ronlyn Duncan

Part IV: Tourists and Urban Water and Lessons for the Future.... 175

12. The Use of Potable Water by Tourists: Accounting for
Behavioral Differences 177
Bethany Cooper

13. Water Pricing, Water Restrictions, and Tourism Water Demand ... 193
Lin Crase and Bethany Cooper

14. Lessons for the Tourism and Recreation Sector and
Directions for Future Research 205
Sue O’Keefe and Lin Crase

Index 213

Figures, Tables, and Boxes

FIGURES

Figure 2.1.	A simplified environmental production system showing key relationships between environmental inputs and outputs	22
Figure 2.2.	Changes in storage capacity and annual diversions in the Murray-Darling Basin, 1902–2009	23
Figure 2.3.	Hypothetical streamflow over time	25
Figure 2.4.	Simulated flows under “natural” and “current development” conditions at the Yarrawonga Weir (a) and the Barrages (b) ...	26
Figure 3.1.	Venn diagram of potential value overlap	34
Figure 3.2.	Summary of total value, use value, and nonuse value	37
Figure 4.1.	Linkages between ecosystem services and human well-being	54
Figure 6.1.	Hybrid models of decentralized environmental governance	94
Figure 8.1.	The Swan and Canning Rivers, with Perth Water highlighted	117
Figure 8.2.	The City of Perth and the Swan River	120
Figure 8.3.	The Kwinana freeway and Perth to Mandurah Railway	121
Figure 9.1.	Map of Darling Range and location of urban areas and dams	134
Figure 12.1.	Compliance cube	187

TABLES

Table 3.1.	Summary of studies inside and outside the Murray-Darling basin	40
Table 4.1.	Visitation for tourism and recreation: Industry settings for aquatic ecosystem services	58
Table 4.2.	List of aquatic ecosystem services	60
Table 4.3a.	Water features associated with wetland ecosystems likely to be relevant for visitation	61
Table 4.3b.	Biodiversity features associated with water and wetland ecosystems likely to be relevant for visitation	62

Table 4.3c.	Visitor facilities associated with water and wetland ecosystems likely to be relevant for visitation	63
Table 9.1.	Recreational activities and assumed risk to water quality in catchments	142
Table 11.1.	Summary of the achievement of knowledge attributes derived from the application of institutional functions by PEAC and the DMC	168

BOXES

Box 2.1.	Evaluations of Ecosystem Health at the River Valley Level ...	18
Box 2.2.	Restoration of the Snowy River	24
Box 10.1.	Challenges of Overextraction and Competition	150

PART I

CONTEXT, VALUES, AND TRADE-OFFS