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Constructing the aquatic environment as a legal subject: legal rights, market participation, and the power of narrative.

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Abstract

Environmental Water Managers (EWMs) operate around the world (mostly in Australia and the western USA) to improve environmental flows for the benefit of the aquatic environment.

EWMs are organizations with:

- 1) Attributes of legal personality (rights and powers);
- 2) Specific objectives to improve and maintain the health of aquatic ecosystems; and
- 3) Capacity to acquire and manage water rights, using the water market.

The creation and operation of the EWMs raises an important question: what happens when the aquatic environment is *constructed* in water law, and *participates* in water markets, as a legal subject?

To answer this question, this thesis examines the constructions of the aquatic environment in water law in south-eastern Australia and the western USA. A combination of legal analysis and qualitative research (long-form interviews and content analysis) has been used to explore the creation and operation of the EWMs within their legal and social contexts.

Answering this question also required the specific example of the EWMs to be understood as part of the broader context of environmental law. Using a constructivist analysis, this thesis develops a new conceptual framework which distils the myriad, diverse legal definitions of the ‘environment’ in law into three main legal constructs: a socio-ecological concept, a legal object, and a legal subject, each of which is underpinned by a particular cultural narrative (Figure 1 below; see also Chapters 3 and 8).

The key finding of this thesis is that the creation and operation of the EWMs generates an unexpected paradox. The EWM organisations *increase* the legibility of the aquatic environment to law, and *increase* the rights and powers of the aquatic environment in law (as well as increasing the quantity of water for the environment), but in doing so, they reframe the aquatic environment as a mere participant in a water market, and can *undermine* the cultural narratives that support environmental protection in the first place.

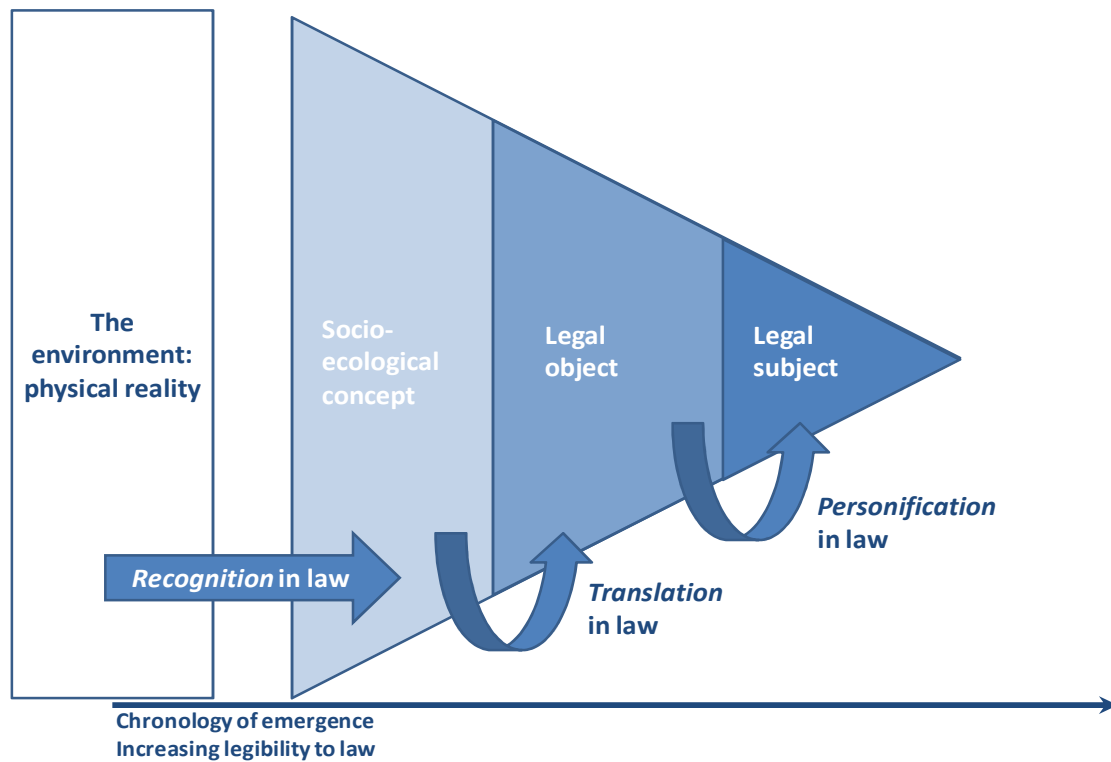


Figure 1 Constructing the environment in law: a conceptual framework

This paradox can be understood by applying the conceptual framework to the EWMs. The construction of the aquatic environment in water law simultaneously as a legal object and a legal subject (the EWMs) brings the underpinning cultural narratives into conflict. The construction of the aquatic environment as a legal object depends on the narrative that the aquatic environment is worthy of protection, but legally weak, with no legal rights. Alternatively, the construction of the aquatic environment as a legal subject confers both legal rights and legal status. But as a legal subject, the aquatic environment can (and is expected to) take legal action to protect its own legal rights. These narratives shape the regulatory response, and thus tension between the competing narratives can lead to legal reform. Legal changes in response to the fear of a legally powerful construction of the aquatic environment (the EWMs) are evident in both Australia and the USA.

The power of this analysis is two-fold. Firstly, it shows the necessity of including the broader legal effects of the creation and operation of the EWMs in assessing their success. Secondly, it contributes to ongoing debates in the 'legal rights to nature' and market environmentalism scholarship, by showing that more attention ought to be paid to exactly *how* 'nature' is given form and power within the law.

Declaration page

In submitting this thesis, I declare:

- This thesis comprises only my original work towards the Doctor of Philosophy except where indicated in the preface;
- Due acknowledgement has been made in the text to all other material used; and
- The thesis is fewer than 100,000 words (the maximum word limit) in length, exclusive of tables, maps, bibliographies and appendices.

Preface

Some of the original material in Chapters 2 and 5 has been published in the following articles:

- O'Donnell, Erin, 'Institutional Reform in Environmental Water Management: the New Victorian Environmental Water Holder' (2012) 22 *Journal of Water Law* 73.
- O'Donnell, Erin, 'Australia's Environmental Water Holders: Who is Managing Our Environmental Water?' (2013) 28(3) *Australian Environment Review* 508.
- O'Donnell, Erin, 'Common Legal and Policy Factors in the Emergence of Environmental Water Managers' in C A Brebbia (ed), *Water and Society II* (WIT Press, 2013) 321.

In addition, I have also published a range of co-authored articles and book chapters in the field of environmental water management. Original material from the thesis has not been included in these publications, but they have benefited from the research undertaken as part of completing this thesis:

- Garrick, Dustin and Erin O'Donnell, 'Exploring Private Roles in Environmental Watering in Australia and the US' in Jeff Bennett (ed), *Protecting the Environment, Privately* (World Scientific Publishing, 2016) 203.
- Horne, A and E O'Donnell, 'Decision Making Roles and Responsibility for Environmental Water in the Murray-Darling Basin' (2014) 18(2) *Australian Journal of Water Resources* 118.
- Horne, A, J Freebairn and E O'Donnell, 'Establishment of Environmental Water in the Murray-Darling Basin - an Analysis of Two Key Policy Initiatives' (2011) 15(1) *Australian Journal of Water Resources* 7.
- O'Donnell, E and E MacPherson, 'Challenges and Opportunities for Environmental Water Management in Chile: an Australian Perspective' (2014) 23 *Journal of Water Law* 24.
- O'Donnell, Erin and Dustin Garrick, 'Chapter 19: Environmental Water Organizations and Institutional Settings' in Avril Horne et al (eds), *Water For the Environment* (Elsevier, In press).
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I am also very grateful to the Melbourne Law School. The Office of Research staff were always happy to help whenever I called them with a query, and always made me feel welcome. My academic advisors, Dale Smith and Jacqueline Peel, were generous with their time and feedback. Melbourne Law School also funded my travel to conferences, and to conduct interviews. I also received a scholarship from the University of Melbourne, to travel to the western USA in 2013. I am also grateful to the British Council, who funded me to travel to the UK in 2013, to meet with a wide range of academics in water and environment management.

I have been part of a wonderful cohort of PhD students and researchers. Liz Macpherson and Bec Nelson, I am so, so glad we all decided to do our water law PhDs at the same time! Lily O'Neill, Liz Sheargold, Lisa Cairipis, Anita Foerster and Tim Baxter – your friendship and support made my visits to the MLS a delight.

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Finally, my husband Rob has supported me without question or complaint for six years as I did this. Without his kindness, understanding, and care, this PhD would not have been possible. And he makes me laugh.

Table of contents

Chapter 1 Introduction.....	1
I. Introduction	1
A. <i>The Role of the EWMs</i>	4
B. <i>Thesis Questions</i>	7
II. Methodology	10
A. <i>Definitions</i>	10
1. <i>Environmental flows and environmental water</i>	10
2. <i>Aquatic ecosystems: what is in, what is out?</i>	13
3. <i>Water rights</i>	14
B. <i>An overall approach: ‘light’ constructivism</i>	15
C. <i>Specific methods: Legal analysis and empirical legal research</i>	16
1. <i>How do the EWMs construct the aquatic environment as a legal subject?</i>	16
2. <i>How is the environment constructed in law?</i>	17
3. <i>How is the aquatic environment constructed in water law?</i>	18
4. <i>How do the constructions of the aquatic environment interact?</i>	19
D. <i>Scope of this research</i>	20
III. Thesis outline	21
IV. Conclusion	23
Chapter 2 The Environmental Water Managers: Form and Function	25
I. Introduction	25
II. The Environment in Water Law: a Transition.....	27
A. <i>Protection and Maintenance</i>	30
B. <i>Restoration: Recovery and Management of Water</i>	32
C. <i>Modern Water Rights for the Environment</i>	37
III. Environmental Water Managers (EWMs)	41
IV. Constructing the Aquatic Environment as a Legal Subject.....	45
A. <i>Legal context of the EWMs</i>	45
1. <i>Results of the review step 1: Where are the EWMs?</i>	48
2. <i>Results of the review steps 2 and 3: Do the EWMs depend on this legal context?</i>	51
B. <i>How do legal form and legal context create personhood?</i>	52
V. Conclusion	57
Chapter 3 Constructing the Environment in Law: a Quest for Legibility	59

I.	Introduction	59
II.	'Modern' Environmental Law: the Construction of the Environment	61
A.	<i>A Socio-Ecological Concept Articulated by the Law</i>	62
1.	<i>Broad or Narrow?</i>	65
2.	<i>Dynamic or Stable?</i>	67
B.	<i>Translation of the Environment into a Legal Object</i>	69
1.	<i>Translation and Incomplete Legibility</i>	69
2.	<i>Remaining Blind Spots</i>	71
C.	<i>Personification of the Environment as a Legal Subject</i>	73
1.	<i>Personification and Corporatisation</i>	74
2.	<i>Market Environmentalism</i>	76
3.	<i>Water Markets as a Driver of Personhood</i>	79
III.	Cultural Narratives and the Construction of the Environment	82
A.	<i>Legal Object: Weak but Worthy of Protection</i>	83
B.	<i>Legal Subject: More Power, Less Protection?</i>	85
IV.	Constructing the Environment in Law: a Conceptual Framework	87
V.	Conclusion	89
	Chapter 4 Research Methods	90
I.	Introduction	90
A.	<i>Empirical Research in Law and the Role of Qualitative Research</i>	91
II.	Research Methods	93
A.	<i>Two Case Studies: South-Eastern Australia and Western USA</i>	94
1.	<i>Undertaking the Case Studies</i>	95
B.	<i>Legal Analysis</i>	96
C.	<i>Interviews and Content Analysis</i>	98
1.	<i>Research Ethics</i>	99
2.	<i>Interviewees</i>	100
3.	<i>Conducting the interviews</i>	101
4.	<i>Content analysis</i>	102
D.	<i>Using the different data sources</i>	104
III.	Conclusion	105
	Chapter 5 Water Law and the EWMs of South-Eastern Australia (case study 1)	107
I.	Introduction	107
II.	Water Law and the Aquatic Environment in South-Eastern Australia	108

A.	<i>Water Law in South-Eastern Australia</i>	110
1.	<i>Water Markets in South-Eastern Australia</i>	113
B.	<i>Constructing the Aquatic Environment in Australian Water Law</i>	115
1.	<i>Recognition of the Aquatic Environment in Water Law</i>	116
2.	<i>Translating the Aquatic Environment into a Legal Object</i>	118
3.	<i>Legal Rights and Personhood for the Aquatic Environment</i>	120
III.	<i>The Environmental Water Managers of South-eastern Australia</i>	123
A.	<i>Legal Form: How are the EWMs Constructed in Law?</i>	124
1.	<i>Government EWMs</i>	125
2.	<i>Non-Government EWMs</i>	128
B.	<i>Operation of the EWMs: Recovery and Management</i>	133
1.	<i>Recovery of Environmental Water: Right to Hold and Acquire Water Rights</i>	135
2.	<i>Management of Environmental Water: the EWM as Decision-Maker</i>	140
IV.	<i>Conclusion</i>	145
	Chapter 6 Water Law and the EWMs of the Western USA (case study 2)	147
I.	<i>Introduction</i>	147
II.	<i>Water Law and the Aquatic Environment in Western USA</i>	149
A.	<i>Water law in Western USA: the Columbia River and Colorado</i>	153
1.	<i>Water Markets in the Western USA</i>	157
B.	<i>Constructing the Aquatic Environment in Western USA Water Law</i>	159
1.	<i>Recognising the Aquatic Environment: a Beneficial Use</i>	160
2.	<i>Translating the Aquatic Environment: a Legal Object/Subject Hybrid</i>	162
3.	<i>Legal Rights and Personhood for the Aquatic Environment</i>	164
III.	<i>The Environmental Water Managers of Western USA</i>	168
A.	<i>Legal Form: How are the EWMs Constructed in Law?</i>	169
B.	<i>Operation of the EWMs: Appropriation and Acquisition</i>	174
1.	<i>Appropriation of Instream Flows: Protection</i>	178
2.	<i>Appropriation and Construction as a Legal Object/Subject Hybrid</i>	179
3.	<i>Acquisition of Instream Flows: Restoration</i>	181
4.	<i>Acquisition and construction as a legal subject</i>	185
IV.	<i>Conclusion</i>	187
	Chapter 7 Legal Personhood and the Paradox of the EWMs	189
I.	<i>Introduction</i>	189
II.	<i>Power and the Ability to Use It: Limits on the EWMs</i>	190

A.	<i>Creation of the EWMs: Legal Form</i>	192
1.	<i>Non-government EWMs</i>	192
2.	<i>Government EWMs</i>	193
3.	<i>The Importance of Legal Form and Independence</i>	196
B.	<i>Choices: Which Personhood Powers are the EWMs Using?</i>	199
1.	<i>EWMs of South-Eastern Australia: Just Another User</i>	201
2.	<i>EWMs of Columbia Basin and Colorado: Collaborator</i>	205
C.	<i>Competing Narratives and ‘Off-Limits’ Legal Powers</i>	211
III.	<i>Fear of a Legally Powerful Organisation Representing the Aquatic Environment</i>	216
A.	<i>Western USA: the Need for Balance and Limits on Trade</i>	216
B.	<i>South-eastern Australia: New Limits on Water Purchase</i>	218
IV.	<i>Conclusion: the Paradox of the EWMs</i>	220
	Chapter 8 Conclusion	223
I.	<i>Introduction</i>	223
A.	<i>Thesis Questions and Key Findings</i>	225
II.	<i>Environmental Water Managers: a Compelling Example</i>	229
A.	<i>A Voice for the River? Competing Cultural Narratives</i>	230
III.	<i>A New Way of Understanding the Environment in Law</i>	232
A.	<i>Constructing the Environment in Law</i>	233
1.	<i>The Power of the Conceptual Framework</i>	236
IV.	<i>Understanding the Paradox of the EWMs: Future Research</i>	238
A.	<i>Lessons from the EWMs</i>	239
B.	<i>A New Dialogue in a Contested Space</i>	242
C.	<i>Application of Behavioural Economics</i>	244
V.	<i>Conclusion</i>	246
	Bibliography	249
	Appendices	284

Note: there is a large volume of interview material quoted in this thesis. For ease of navigation, the footnotes restart from ‘1’ for each new chapter.

Figures and Tables

I. FIGURES

Figure 1 Conceptual framework of the constructions of the environment in law	88
Figure 2 River systems in Victoria in which the VEWH operates	109
Figure 3 The Murray-Darling Basin	110
Figure 4 EWM decision-making in environmental water management	141
Figure 5 Columbia River Basin	151
Figure 6 Colorado River Basin	153
Figure 7 Construction, narrative and regulatory response	215
Figure 8 Constructing the environment: processes, constructions and legibility	235

II. TABLES

Table 1 Project cycle for protecting and maintaining environmental flows	31
Table 2 Project cycle for recovery and management of environmental water	35
Table 3 Search terms for each condition of the review	47
Table 4 Jurisdictions with EWMs	48
Table 5 Government EWMs	54
Table 6 Non-government EWMs	55
Table 7 Themes for content analysis (as listed in NVIVO 11)	103
Table 8 EWMs of south-eastern Australia	130
Table 9 Objectives of south-eastern Australian EWMs	134
Table 10 Constructing the environment in western USA water law: recognition, translation and personification	166
Table 11 EWMs of the Columbia Basin	171
Table 12 EWMs in Colorado	173
Table 13 Objectives of the EWMs of the Columbia Basin and the state of Colorado	176
Table 14 Activities undertaken by the EWMs in the two case study locations	200
Table 15 Constructions of the environment in law: processes and narratives	236

Note: there are also several additional tables in the Appendices.

Chapter 1

Introduction

I. INTRODUCTION

The mission of the VEW is to manage Victoria's environmental Water Holdings and cooperate with partners to improve the environmental health of rivers, wetlands and floodplains.¹

In 2010, the Victorian government created the Victorian Environmental Water Holder (VEWH) to be 'the single voice'² for environmental water rights in Victoria. The VEW is one of many *environmental water managers* (EWMs) operating around the world. The EWMs are organisations created to hold and manage water rights on behalf of the aquatic environment.³ EWMs operate in a range of legal frameworks around the world (mostly in Australia and the western USA), and they have a number of features in common. Firstly, the EWM organisations have what Naffine described as the 'particular constellation of rights and duties held by any given legal person',⁴ and many of the EWMs are incorporated entities.⁵ Secondly, the EWMs have specific objectives to improve and maintain the health of the aquatic environment.⁶ Thirdly, the EWMs achieve their objectives by increasing the volume, and/or improving the efficiency of management, of environmental water.⁷ EWMs can use their water rights to provide environmental flows, or they can buy and sell these transferable water rights in water markets.⁸

¹ Victorian Environmental Water Holder, *Reflections: Environmental Watering in Victoria 2012-13* (State Government of Victoria, 2013), 4.

² Parliament of Victoria, *Parliamentary Debates*, Legislative Assembly, 26 May 2010, 1920-22 (Tim Holding, Minister for Water).

³ See definition of the aquatic environment, Chapter 1, 13.

⁴ Ngaire Naffine, *Law's Meaning of Life: Philosophy, Religion, Darwin and the Legal Person* (Hart Publishing, 2009), 10.

⁵ See Chapter 2, 52-56.

⁶ See Chapter 2, 41-44; see also Chapters 5 and 6.

⁷ For more on the EWMs, see Chapters 2, 5 and 6. See also Dustin Garrick and Erin O'Donnell, 'Exploring Private Roles in Environmental Watering in Australia and the US' in Jeff Bennett (ed), *Protecting the Environment, Privately* (World Scientific Publishing, 2016) 203; D Garrick et al, 'Water Markets and Freshwater Ecosystem Services: Policy Reform and Implementation in the Columbia and Murray-Darling Basins' (2009) 69 *Ecological Economics* 366.

⁸ See definition of environmental flows, Chapter 1, 10. The EWMs are detailed in Chapter 2.

The creation and operation of the EWMs causes a significant reframing of the role of the aquatic environment in water law, changing it from the context in which water resource management occurs and (more recently) a measure of the sustainability of water management,⁹ to a holder of water rights, a decision-maker, and a participant within the water market (via the EWMs).¹⁰ In Victoria, this reframing has also been accompanied by a shift in language used to describe the aquatic environment, from a legitimate need for water¹¹ to 'just another user' of water.¹² In light of this reframing and linguistic shift, the creation and operation of EWMs raises an important question: what happens when the aquatic environment is *constructed* in water law, and *participates* in water markets, as a legal subject?¹³

To answer this question, this thesis investigates how the EWMs relate to, and interact with, their broader legal context. The EWMs are a particular legal and organisational response to the problem of providing sufficient water for the environment in conditions of scarcity, and where access to water is managed using a market mechanism.¹⁴ However, the EWMs also exist within a web of statutory frameworks that govern both water and the environment.¹⁵ Their creation and operation, whilst intended to achieve specific objectives in water resource management, has occurred within a much longer trajectory of environmental law reform.

Re-locating the EWMs within their legal and historical context requires examination of two particular attributes of the EWMs. Firstly, the capacity of the EWMs as organisations with legal personality to *represent* the aquatic environment and to give it the legal rights

⁹ See, for example, *Water Act 1989* (Vic) s 1(j).

¹⁰ These activities depend on the specific legal rights and powers of the EWM as a legal person.

¹¹ Department of Natural Resources and Environment (Vic), *Healthy Rivers, Healthy Communities: Victorian River Health Strategy* (State of Victoria, 2002); Department of Sustainability and Environment (Vic), *Victorian Government White Paper: Securing Our Water Future Together* (State of Victoria, 2004).

¹² The earliest usage of this phrase comes from Paul Humphries, 'The Drought We Had to Have?' *Science Alert* (online) 15 August 2008, <http://www.sciencealert.com/opinions/20081508-17809-4.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%25253A+sciencealert-latestnews+%252528ScienceAlert-Latest+Stories%252529> (copy on file with author). However, it can also be found in a number of interviews with staff from the Australian EWMs, see Chapters 5, 7 and 8.

¹³ For the questions this thesis will answer, see Chapter 1, 7.

¹⁴ For a more detailed discussion of the form and function of the EWMs, see Chapter 2.

¹⁵ As many of the EWMs are corporations, they are also affected by corporations law, but whilst this relationship is acknowledged, it is largely beyond the scope of this thesis to examine it in detail; see Chapters 2, 5 and 6.

and powers associated with legal persons. This thesis focuses on how the EWMs operate to construct the aquatic environment in water law as a legal subject, and by focusing on the *construction*,¹⁶ rather than the *definition*, of the aquatic environment,¹⁷ the common elements of legal personhood can be identified and examined across multiple EWM forms.¹⁸

Secondly, this thesis examines the environmental protection and management objectives of the EWMs, and how these specifically *environmental* objectives form part of the much broader context of environmental law. By using a constructivist analysis, this thesis creates a new lens through which to examine environmental law more broadly,¹⁹ and enables the myriad, diverse legal definitions of 'environment' to be distilled into three main legal constructs: a socio-ecological concept, a legal object, and a legal subject.²⁰ Each of these constructs has emerged in response to the problem of how to make the environment itself *legible* to law,²¹ as prior to modern environmental law, the specifically 'environmental' nature of legal problems was often overlooked.²²

The creation of modern environmental law has been a largely statutory process,²³ and such '[t]ools never come out of thin air'.²⁴ Modern environmental law is underpinned by *cultural narratives*²⁵ of what the environment means, and how it is valued.²⁶ In this thesis, I have developed a conceptual framework that connects the multiple constructions of

¹⁶ For more on the power of the law to construct its subjects, see Chapter 1, 15.

¹⁷ For a discussion on how the aquatic environment is defined in water law, see Chapter 1, 13.

¹⁸ For a detailed review of the creation and operation of EWMs around the world, see Chapter 2.

¹⁹ For discussion of the method of constructivist analysis, see Chapter 1, 15-16.

²⁰ For a detailed constructivist analysis of the environment in law, see Chapter 3.

²¹ In this thesis, I use *legibility* in its broader sense of both *visibility* and *comprehensibility*.

²² See Chapter 3; see also Zygmunt J B Plater, 'From the Beginning, a Fundamental Shift of Paradigms: a Theory and Short History of Environmental Law' (1994) 27 *Loyola of Los Angeles Law Review* 981; David Grinlinton, 'The "Environmental Era" and the Emergence of "Environmental Law" in Australia - A Survey of Environmental Legislation and Litigation 1967-1987' (1990) 7 *Environmental and Planning Law Journal* 74.

²³ D E Fisher, *Australian Environmental Law: Norms, Principles and Rules* (Thomson Reuters, 2nd ed, 2010); Lee Godden and Jacqueline Peel, *Environmental Law: Scientific, Policy and Regulatory Dimensions* (Oxford University Press, 2010); Neil Gunningham, 'Environmental Law, Regulation and Governance: Shifting Architectures' (2009) 21(2) *Journal of Environmental Law* 179; Plater, above n 22.

²⁴ Yrjö Haila and Chuck Dyke (eds), *How Nature Speaks: The Dynamics of the Human Ecological Condition* (Duke University Press, 2006), viii.

²⁵ These cultural narratives are the 'social stories that frame and contextualize events', Robin Kundis Craig, 'Learning to Live with the Trickster: Narrating Climate Change and the Value of Resilience Thinking' (2016) 33(Spring) *Pace Environmental Law Review* 351, 352.

²⁶ For discussion of the role of cultural narratives in environmental law, see Chapter 3, 82.

the environment in law and their underpinning cultural narratives.²⁷ The application of this framework to water law and the EWMs illuminates the relationship between the different constructions of aquatic environment in water law, and the effects of their interaction on the EWMs.²⁸

In doing so, this thesis produces a significant and novel finding. The creation and operation of the EWMs appears to generate a paradox: they are organisations that *increase* the legal rights and powers of the aquatic environment (by constructing the aquatic environment as a legal person), but in doing so, they reframe the aquatic environment as ‘just another user’, a mere participant in a water market, and thus *undermine* the cultural narratives that support environmental protection in the first place.²⁹ The EWMs demonstrate that this loss of support can have significant consequences, including legal reform that reduces statutory environmental protections.³⁰ This finding is unexpected, and suggests that the evaluation of the ability of water markets (and the EWMs in particular) to deliver environmental improvements needs to be widened to take these impacts into consideration.

The next section provides a brief overview of the specific problems that the EWMs were intended to solve, and why it is imperative to understand their ability to do so.³¹

A. *The Role of the EWMs*

Chronic freshwater shortage is an urgent problem. By 2050, the OECD predicts that river basins where almost four billion people live will be under severe water stress,³² and water scarcity is likely to be exacerbated by growing populations and the increasing frequency and severity of drought under climate change.³³ As more water has been extracted from freshwater systems to meet human needs, the resulting ecological damage has

²⁷ For the conceptual framework, see Chapter 3, 87.

²⁸ See Chapters 5-7.

²⁹ This finding is the result of the detailed case studies (Chapters 5 and 6) and the analysis in Chapter 7.

³⁰ See Chapter 7, 217-221.

³¹ Literature reviews are presented in Chapter 2 (on the EWMs) and in Chapter 3 (on the construction of the environment in modern environmental law).

³² OECD, *OECD Environmental Outlook to 2050* (OECD Publishing, 2012), 208.

³³ See, for example, Will Steffen, ‘Thirsty Country: Climate Change and Drought in Australia’ (Climate Council of Australia, 2015), i.

highlighted the importance of retaining sufficient water in the system to meet the needs of the natural environment.³⁴

Rivers and wetlands are among some of the most threatened ecological systems in the world.³⁵ Insufficient water³⁶ can cut off habitat for fish spawning and bird breeding, and cause the dieback of aquatic vegetation.³⁷ Historically, it was often only after there was clearly not enough water to go around that the environmental impacts of over-extraction were explicitly considered under consumptive water allocation frameworks.³⁸ This situation is starting to improve as water resource managers begin to include sustainability considerations, but in many parts of the world, there is just not enough water for the aquatic environment.³⁹

One of the mechanisms developed for managing this scarcity of freshwater resources is the water market.⁴⁰ In addition to managing water scarcity between human users, water markets also provided an opportunity to increase the volume of water for aquatic ecosystems.⁴¹ The water market, as a mechanism that enables transfer of water between

³⁴ See, for example, Murray-Darling Basin Commission, *An Audit of Water Use in the Murray-Darling Basin: June 1995* (Murray-Darling Basin Commission, 1995); it is also acknowledged that the environment needs different volumes at different times, and can sometimes require less water than it currently receives. The EWMs focus on both increasing the volume of water when required, and managing available water to generate the correct flow regime.

³⁵ Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being: Wetlands and Water Synthesis* (World Resources Institute, 2005).

³⁶ This insufficiency can be the result of extracting too much water directly, or by capturing too much water in dams.

³⁷ Neville D Crossman et al, *Status of the Aquatic Ecosystems of the Murray-Darling Basin and a Framework for Assessing the Ecosystem Services They Provide: an Interim Report to the Murray-Darling Basin Authority from the CSIRO Multiple Benefits of the Basin Plan Project* (CSIRO: Water for a Healthy Country National Research Flagship, 2011); Kevin G Wheeler et al, 'Alternatives for Restoring the Colorado River Delta' (2007) 47(4) *Natural Resources Journal* 917.

³⁸ It is arguable that environmental impacts were considered under riparian regimes where natural river flows were maintained; however, the emphasis of the natural flow doctrine was on the other users of the river, not the river itself, Carol M Rose, 'Energy and efficiency in the realignment of common law water rights' (1990) 19 *Journal of Legal Studies* 261.

³⁹ Tom Le Quesne, Eloise Kendy and Derek Weston, *The Implementation Challenge: Taking Stock of Government Policies to Protect and Restore Environmental Flows* (World Wildlife Fund UK, 2010); Rafik Hirji and Richard Davis, *Environmental Flows in Water Resources Policies, Plans, and Projects: Findings and Recommendations* (The World Bank, 2009).

⁴⁰ There is a rich literature on the development and evaluation of water markets in legal scholarship as well as economics. This thesis has drawn on both disciplines, but does not use a normative 'law and economics' approach. See discussions in Chapters 2, 3, 5 and 6.

⁴¹ Garrick et al, above n 7.

users, provides a way to recover water for the environment,⁴² as well managing the available water efficiently.⁴³

The EWMs are organisations with the attributes of legal personality, specifically created to acquire, hold and manage water rights on behalf of the aquatic environment. The EWMs use their water rights to improve environmental flows, or they can trade those water rights in the water market. The ability of the EWMs to deliver improvements to aquatic health has been the subject of much analysis.⁴⁴ However, the literature on EWMs has almost exclusively focused on how much water they recover (often very large volumes), what sort of ecological benefits they achieve, and for what cost.⁴⁵ This thesis goes beyond the traditional metrics of short-term efficiency and efficacy, by considering the interaction between the EWMs and their legal context. In doing so, the analysis of efficacy is broadened to include longer-term outcomes, and the importance of ongoing community support for the EWMs and their statutory frameworks.

The analysis of the effects of the EWMs matters, because the EWMs are an important mechanism for the protection and improvement of aquatic health. They have been successful in recovering significant volumes of water for the environment, and their

⁴² Productivity Commission, *Market Mechanisms for Recovering Water in the Murray-Darling Basin* (Final Report, March) (Productivity Commission, 2010); Brandon Scarborough, *Environmental Water Markets: Restoring Streams Through Trade* (Property and Environment Research Centre, 2010).

⁴³ A Horne, *An Approach to Efficiently Managing Environmental Water Allocations* (PhD Thesis, University of Melbourne, 2009); see eg, the water trades of the VEWH, Victorian Environmental Water Holder, *Reflections: Environmental Watering in Victoria 2014-15* (State Government of Victoria, 2015).

⁴⁴ Janet C Neuman, 'The Good, the Bad and the Ugly: the First Ten Years of the Oregon Water Trust' (2004) 83 *Nebraska Law Review* 432; National Water Commission, *Australian Environmental Water Management: 2012 review* (Commonwealth of Australia, 2012); Dustin Garrick, Chelsea Lane-Miller and Amy L McCoy, 'Institutional Innovations to Govern Environmental Water in the Western United States: Lessons for Australia's Murray-Darling Basin' (2011) 30(2) *Economic Papers* 167; see also, Erin O'Donnell, 'Common Legal and Policy Factors in the Emergence of Environmental Water Managers' in C A Brebbia (ed), *Water and Society II* (WIT Press, 2013) 321; Erin O'Donnell and Dustin Garrick, 'Chapter 19: Environmental Water Organisations and Institutional Settings' in Avril Horne et al (eds), *Water For the Environment* (Elsevier, in press).

⁴⁵ Sarah Wheeler et al, 'Evaluating Water Market Products to Acquire Water for the Environment in Australia' (2013) 30 *Land Use Policy* 427; Dustin Garrick and Bruce Aylward, 'Transaction Costs and Institutional Performance in Market-Based Environmental Water Allocation' (2012) 88(3) *Land Economics* 536; Dustin Garrick, Stuart M Whitten and Anthea Coggan, 'Understanding the Evolution and Performance of Water Markets and Allocation Policy: A Transaction Costs Analysis Framework' (2013) 88 *Ecological Economics* 195; Garrick et al, above n 7; Lin Crase, Sue O'Keefe and Yukio Kinoshita, 'Enhancing Agrienvironmental Outcomes: Market-based Approaches to Water in Australia's Murray-Darling Basin' (2012) 48(9) *Water Resources Research* W09536; Lin Crase, Brian Dollery and Sue O'Keefe, 'Managing Environmental Water: Lessons in Crafting Efficient Governance Arrangements' (2011) 30(2) *Economic Papers* 122; Scarborough, above n 42.

ability to participate in water markets is part of their success story.⁴⁶ Understanding the longer-term effects of their operations is critical to evaluating whether they are, in fact, successful in achieving their environmental objectives.

The next section sets out the specific questions that this thesis will answer.

B. *Thesis Questions*

The EWMs are organisations that have the attributes of legal personality, and are a way of constructing the aquatic environment as a legal person within the water law frameworks in which they are created and operate. In some cases the EWMs were intentionally created as a voice for the environment,⁴⁷ but in many cases, the ability to represent the aquatic environment in law, and in the market, as a legal person, is a largely unintentional outcome of their operation.⁴⁸ This thesis examines the creation and operation of the EWMs within water law to answer the question:

What happens when the aquatic environment is constructed as a legal subject?

To answer this question, I have addressed these sub-questions:

- a) How do the EWMs construct the aquatic environment as a legal subject?
- b) How is the environment constructed in law? What are the cultural narratives underpinning these constructions?
- c) How is the aquatic environment constructed in water law?
- d) How do the multiple constructions of the aquatic environment in water law interact? What are the effects of these interactions, particularly for the construction of the aquatic environment as a legal subject?

In doing so, this thesis places the EWMs in the context of the broader environmental law scholarship.⁴⁹ The question of how the environment is constructed in law matters, because constructing the environment in a way that makes the environment *legible* to the law is not straightforward.⁵⁰ The environment is a nebulous concept, contingent on both the physical (and ecological) reality, and the particular values of human society at a

⁴⁶ Neuman, above n 44; Garrick, Lane-Miller and McCoy, above n 44; Garrick et al, above n 7.

⁴⁷ Parliament of Victoria, *Parliamentary Debates*, above n 2.

⁴⁸ See interviews in Chapters 5-8, where the EWM staff exhibit considerable ambiguity on the question of whether they are a 'voice' for the aquatic environment.

⁴⁹ It is noted that the findings of this research are limited in scope to the water laws and jurisdictions examined, but by placing the EWMs within this broader context, this research also establishes grounds for examining whether these findings affect other fields within environmental law.

⁵⁰ For more detail on the complexities of constructing the environment in law, see Chapter 3.

given time.⁵¹ As a result, the environment is particularly difficult for the law to engage with, because it is inherently dynamic (via ecological processes), as well as changing in response to shifting human values. Historically, environmental law has used a combination of extremely specific definitions of the environment in statute, as well as open-ended, unstated concepts.⁵² When the environment is constructed as a legal subject with legal rights, these definitions become crucially important, but there has been little analysis of how these definitions combine or interact.⁵³

This broader analysis shows that the construction of the aquatic environment as a legal person has occurred at the intersection of two very different legal trends in environmental law: legal rights for nature, and the use of market mechanisms to achieve environmental outcomes.⁵⁴

The 'legal rights for nature' movement has recently found real-world application in New Zealand, Ecuador, Bolivia, and some local governments in the USA.⁵⁵ Granting legal rights to the environment makes it 'the formal subject of rights and duties',⁵⁶ and is, in effect, a transition from legal object to legal subject in the eyes of the law. Legal rights are only of value to the extent that they can be enforced,⁵⁷ so while the creation of the capacity for those rights in law may be a relatively rapid process (such as the passing of legislation), the competence to enforce them⁵⁸ depends on a particular organisational

⁵¹ See discussion on the social construction of nature, especially Neil Evernden, *The Social Creation of Nature* (Johns Hopkins University Press, 1992); David W Kinder, 'Fabricating Nature: A Critique of the Social Construction of Nature' (2000) 22 *Environmental Ethics* 339; Anna Peterson, 'Environmental Ethics and the Social Construction of Nature' (1999) 21(339-358) *Environmental Ethics*; Mick Smith, 'To Speak of Trees: Social Constructivism, Environmental Values, and the Future of Deep Ecology' (1999) 21 *Environmental Ethics* 359.

⁵² Eg, the *National Environment Protection Act* (NEPA) in the USA, see Chapter 3, 65.

⁵³ It is noted that there have been analyses of how the law constructs nature, but these analyses have focused on understanding how this occurs, without considering what the outcomes of multiple constructions of the environment in law might be, eg, Keith H Hirokawa, 'Dealing with Uncommon Ground: the Place of Legal Constructivism in the Social Construction of Nature' (2003) 21(3) *Virginia Environmental Law Journal* 387

⁵⁴ Chapter 3, 74-83.

⁵⁵ For recent examples, see Chapter 3, 75.

⁵⁶ Naffine, *Law's Meaning of Life*, above n 4, 1.

⁵⁷ Holmes Rolston III, 'Rights and Responsibilities on the Home Planet' (1993) 18 *Yale Journal of International Law* 251; this argument has its roots in Llewellyn's realist analysis: '[n]ot only "no remedy, no right", but "precisely as much right as remedy"', Karl N Llewellyn, 'Some Realism about Realism: Responding to Dean Pound' (1931) 44 *Harvard Law Review* 1222, 1244.

⁵⁸ Naffine distinguishes between capacity to attract legal rights and competence to enforce them on one's own behalf, see Ngaire Naffine, 'Who are Law's Persons? From Cheshire Cats to Responsible Subjects' (2003) 66(3) *Modern Law Review* 346, 350, n 18.

vehicle in order to manifest those rights.⁵⁹ The EWMs are the organisation responsible for acquiring and managing water for the aquatic environment over long periods, and are an example of how the capacity and competence for legal rights for the environment can come together in the creation and operation of an organisation.⁶⁰

Market environmentalism, and the use of market-based regulatory instruments to protect and manage the environment, is even more influential.⁶¹ Environmental markets typically frame the environment as a third-party beneficiary, and with limited capacity to participate in the market.⁶² Participation in a market depends on the construction of the environment as capable of holding transferable 'property' rights⁶³ and entering contracts, which are attributes of legal personhood. Water markets enable the environment to be both a buyer and a seller of water, a resource that is of value to all users.⁶⁴ The capacity of the EWMs to participate in water markets depends on their specific legal powers (to hold water rights, to enter contracts, to sue and be sued), and the capacity and freedom to use those legal powers in the particular legal, social and economic context in which they operate.

This thesis creates a real dialogue between 'legal rights for nature' and market environmentalism, and the findings will be of interest to scholars and practitioners in both. In particular, this thesis shifts the debate from *whether* 'nature' could (or should) be constructed as a legal subject, to examining the outcomes of what happens when it is.

The EWMs are organisations with the attributes of legal personality, created to manage legal water rights on behalf of the aquatic environment, in conditions of scarcity, and in

⁵⁹ Stone has used the example of a guardian for the environment, see Christopher D Stone, *Should Trees Have Standing? Law, Morality and the Environment* (Oxford University Press, 3rd ed, 2010).

⁶⁰ Chapters 2, 5, 6 and 7.

⁶¹ David Driesen, 'Economic Instruments for Sustainable Development' in Benjamin J Richardson and Stepan Wood (eds), *Environmental Law for Sustainability* (Hart Publishing, 2006) 277; Terry L Anderson and Gary D Libecap, *Environmental Markets: A Property Rights Approach* (Cambridge University Press, 2014); Terry L Anderson, 'The Market Process and Environmental Amenities' in J. Bennett and W. Block (eds), *Reconciling Economics and the Environment* (Australian Institute for Public Policy, 1991) 133; Terry L Anderson and Donald R Leal, *Free Market Environmentalism* (Palgrave, 2001).

⁶² Barton H Thompson Jr, 'Markets for Nature' (2000) 25 *William and Mary Environmental Law and Policy Review* 261.

⁶³ The definition of property varies between legal and economic contexts, see D E Fisher, 'Markets, Water Rights and Sustainable Development' (2006) 23 *Environmental and Planning Law Journal* 100.

⁶⁴ See Chapter 3, 79.

the context of water markets. As a result, they are a compelling and useful example of the construction of the environment as a legal person.⁶⁵

The next section outlines the methodology used to answer the question: what happens when the aquatic environment is constructed as a legal person?

II. METHODOLOGY

In undertaking this thesis, I have developed a methodology of four parts:

- Definitions of key terms;
- An overall approach to legal analysis; and
- Specific methods to answer the key thesis question and the sub-questions;⁶⁶ and
- Scope of the research, and limitations of the findings.

A. Definitions

One of the recurring themes in environmental protection is that it is often assumed that everyone understands what is meant by the basic terms that underpin a legal framework. However, this is not always straightforward, as the ‘environment’ in law reflects both a physical reality and a social value, and specific definitions are often created to reflect the particular objectives of legislation.⁶⁷ This definitional problem is even more acute in water law, where environmental protection relies on an understanding of ‘aquatic environment’, a term that is rarely, if ever, specifically defined in law.

The following section provides a short overview of three critical concepts: environmental water, aquatic ecosystems, and water rights. Establishing a common understanding of these concepts is critical to the legal analysis undertaken later in the thesis.

1. *Environmental flows and environmental water*

[E]nvironmental flows ... reflect the needs of animals and plants dependent on the river, its banks, floodplains and estuaries.⁶⁸

Healthy rivers and wetlands depend on both water quantity and water quality, but in many catchments, high levels of water extraction mean that there is simply not enough

⁶⁵ Chapter 2, 53.

⁶⁶ Chapter 1, 7.

⁶⁷ Chapter 3.

⁶⁸ Victorian Environmental Water Holder, *Environmental Water* (14 October 2014) <<http://www.vewh.vic.gov.au/environmental-water>>.

water, so that water quantity has become the overriding concern.⁶⁹ In addition, low water availability also drives poor water quality outcomes.⁷⁰ Whilst water quantity on its own will not ensure healthy rivers, in highly-allocated water systems, where there is a risk of over-allocation or over-use of water,⁷¹ providing the necessary quantity of water is a crucial first step. Water resource laws in many jurisdictions have recognised the concept of ‘environmental flows’ to define the water that the environment needs to ensure a healthy, functioning aquatic ecosystem.⁷²

In 2007, the Brisbane Declaration defined ‘environmental flow’ as: “the quantity, timing, and quality of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend on these ecosystems”.⁷³

Environmental flows are also called instream flows: water provided for environmental purposes within the river, which move through the system and may be available for alternative uses downstream.⁷⁴ In Australia,⁷⁵ the USA⁷⁶ and Mexico,⁷⁷ water has also been

⁶⁹ See, for example, Garrick et al, above n 7; Le Quesne, Kendy and Weston, above n 39.

⁷⁰ For example, high levels of water extraction are held responsible for contributing to low flows in the Murray-Darling Basin, which in turn caused blue-green algae blooms and salinity problems; see Murray-Darling Basin Commission, above n 34, 4, 26-28.

⁷¹ There remains some contention over the precise definition of over-allocation. In Australia, over-allocation and over-use are defined in the 2004 *Intergovernmental Agreement on a National Water Initiative* (see pages 29-30), with over-allocation occurring when “the total volume of water able to be extracted by entitlement holders at a given time exceeds the environmentally sustainable level of extraction for that system”. Whilst this is not perfect, it is a useful working definition. In the US, this is often referred to as ‘over-appropriation’, see Jesse A Boyd, ‘Hip Deep: A Survey of State Instream Flow Law from the Rocky Mountains to the Pacific Ocean’ (2003) 43 *Natural Resources Journal* 1151.

⁷² Rafik Hirji and Richard Davis, *Environmental Flows in Water Resources Policies, Plans, and Projects: Case Studies* (The World Bank Environment Department, 2009), xiii; Angela H Arthington, *Environmental Flows: Saving Rivers in the Third Millennium* (University of California Press, 2012).

⁷³ Brisbane Declaration, *Environmental Flows are Essential for Freshwater Ecosystem Health and Human Well-Being* (10th International River Symposium and International Environmental Flows Conference, 3-6 September 2007, Brisbane, Australia, 2007), see also Hirji and Davis, *Environmental Flows in Water Resources Policies, Plans, and Projects: Findings and Recommendations* above n 39; Le Quesne, Kendy and Weston, above n 39; Stephen Hodgson, *Modern Water Rights: Theory and Practice* (Food and Agriculture Organisation of the United Nations, 2006).

⁷⁴ This term ‘instream flows’ is the preferred terminology in the western USA.

⁷⁵ See, for example, Department of Sustainability and Environment (Vic), *Environmental Watering in Victoria 2009/10* (State of Victoria, 2010).

⁷⁶ The USA is a contributor to pulse flows in the Colorado River Delta, which although they include flow regimes, are effectively a consumptive use of water; see Edward P Glenn, Karl W Flessa and Jennifer Pitt, ‘Restoration potential of the aquatic ecosystems of the Colorado River Delta, Mexico: Introduction to special issue on “Wetlands of the Colorado River Delta”’ (2013) 59 *Ecological Engineering* 1.

extracted from the river for environmental purposes, such as wetland watering. This water is used consumptively at a particular location, and is therefore not available for use downstream.⁷⁸ In Australia⁷⁹ and the Colorado Delta,⁸⁰ water has also been released from storage in order to provide specific flow events (sometimes called ‘designer flows’ in the USA),⁸¹ a particular form of environmental water management called ‘active management’.⁸²

In this thesis, the umbrella term ‘environmental water’ focuses primarily on the quantity of water, as well as the timing of its availability for environmental use. Environmental water is used to designate both run of river flows and water released from storage for environmental purposes; as well as water extracted and used at specific locations, such as wetlands, for environmental purposes.

Environmental water is a mechanism used to maintain ecosystem function at an acceptable level whilst still supporting human use of water.⁸³ By definition, environmental water is always part of a trade-off, as it is legally defined and managed in systems where there are competing uses for water.⁸⁴ It is provided to protect ecosystem functions, but also to provide ecosystem services. Different jurisdictions approach this in different ways. In Australia, the ecosystem benefits of environmental water are often highlighted,⁸⁵ whereas in North America, more emphasis may be placed on the human

⁷⁷ Le Quesne, Kendy and Weston, above n 39, 51.

⁷⁸ It is worth noting that some legal systems, such as the USA, recognise returned flows via groundwater – in this case, some of the water may well be available downstream, but the water law regime in the western USA already reflects these returned flows. In Australia, returned flows via groundwater to the river are not acknowledged as a credit to the environmental flow accounts (although where wetland watering generates *overbank* return flows, there is work underway to recognise these flows legally).

⁷⁹ See, for example, Victorian Environmental Water Holder, *Reflections 2014-15*, above n 43.

⁸⁰ L W Daesslé et al, ‘The 2014 Water Release into the Arid Colorado River Delta and Associated Water Losses by Evaporation’ (2016) 542 *Science of the Total Environment* 586; A Dan Tarlock, ‘Mexico and the United States Assume a Legal Duty to Provide Colorado River Delta Restoration Flows: An Important International Environmental and Water Law Precedent’ (2014) 23(1) *Review of European Community & International Environmental Law* 76; see Chapters 5 and 6.

⁸¹ Mike Acreman et al, ‘Environmental Flows for Natural, Hybrid, and Novel Riverine Ecosystems in a Changing World’ (2014) 12 *Frontiers in Ecology and the Environment* 466.

⁸² O'Donnell and Garrick, above n 44.

⁸³ See, for example, Claudia Pahl-Wostl et al, ‘Environmental Flows and Water Governance: Managing Sustainable Water Uses’ (2013) 5 *Current Opinion in Environmental Sustainability* 341.

⁸⁴ IUCN, *Environmental flows* (29 September 2014) <https://cmsdata.iucn.org/downloads/water_briefing_eflows_1.pdf> (copy on file with author); see also Chapters 2, 5 and 6.

⁸⁵ See, for example, *Water Act 2007* (Cth) s 4 (‘environmental assets’; ‘environmental outcomes’).

benefits of the ecosystem services.⁸⁶ Changing social values as well as changing environmental conditions can therefore significantly impact whether environmental water provision is considered to be adequate.

2. *Aquatic ecosystems: what is in, what is out?*

There is a real definitional challenge for aquatic ecosystems in water law statutes. For example, the objectives for an Australian EWM, the Victorian Environmental Water Holder, are defined using “water ecosystems”, a term which is itself not further defined in the legislation.⁸⁷ At the most basic level, aquatic ecosystems or water ecosystems clearly encompass those ecosystems where water must always be present, such as permanent rivers and lakes. However, aquatic ecosystems can also be ephemeral, such as wetlands. Further, even permanently wet aquatic ecosystems often depend on nutrient inputs from adjacent floodplains:⁸⁸ so are these floodplains included? Where groundwater is concerned, the definition gets broader still: any ecosystem with a connection to a groundwater source could be included.⁸⁹

As a result, legal definitions of aquatic ecosystems are often left open-ended, which supports the development of context-specific definitions in response to local circumstances. EWMs are usually operating with relatively scarce water resources, and seek practical solutions to the challenge of defining the boundaries of aquatic ecosystems. From a practical perspective, aquatic ecosystems are likely to *include* those ecosystems where the provision of increased quantities of environmental water will enhance ecosystem functionality, and *exclude* those ecosystems where provision of additional environmental water does not, or where such water could not feasibly be employed by human means.⁹⁰ The importance of defining the environment in law is a

⁸⁶ For example, one of the largest environmental water advocated in the USA is Trout Unlimited, an organisation that represents the interests of anglers. In Canada, one of the holders of one of the few licences to water a wetland is Ducks Unlimited Canada, an organisation that represents the interests of duck hunters.

⁸⁷ *Water Act 1989* (Vic) s 33DC.

⁸⁸ R T Kingsford, 'Ecological impacts of dams, water diversions and river management on floodplains in Australia' (2000) 25 *Austral Ecology* 109.

⁸⁹ For example, in Australia's mapping of groundwater dependent ecosystems, in addition to subsurface ecosystems, any surface ecosystem that may rely on surface expression of or subsurface groundwater is included (except marine and estuarine systems). See Bureau of Meteorology, *Frequently Asked Questions* (14 October 2014) Groundwater Dependent Ecosystems Atlas <<http://www.bom.gov.au/water/groundwater/gde/faq.shtml>>.

⁹⁰ This becomes murky when considering the recharge of groundwater aquifers, which may benefit an otherwise rainfall dependent ecosystem.

recurring theme throughout this thesis, and the multiple constructions of the environment in law emerge from the multiple definitions of the environment in law.⁹¹

3. *Water rights*

The concept of a legal right to water is central to this thesis. Each water law jurisdiction defines rights to water differently, but there are some general statements that can be made at the outset. Firstly, water rights typically specify the right to use a certain volume of water, in a particular location, in accordance with stated conditions.⁹² Secondly, water rights can be based in common law or created by statute,⁹³ but there is a trend towards increasing reliance on statutory frameworks for water resource management, even in jurisdictions with a history of common law rights.⁹⁴ Thirdly, there is a strong and growing interest in using markets to manage access to water resources, particularly outside urban areas.⁹⁵ For this reason, a water right is often referred to as though it is a form of private property right. While water rights may be considered property in an economics context, they are not consistently considered property by the law.⁹⁶ In this thesis, I use the term 'water right' to refer in a general way to the right to use water as specified in the law of the particular jurisdiction.⁹⁷

⁹¹ See Chapter 2, 45-57 (for how the EWMs construct the aquatic environment) and Chapter 3 (for a broad discussion of how law constructs the environment).

⁹² Hodgson, above n 73; Alex Gardner, Richard Bartlett and Janice Gray, *Water Resources Law* (Lexisnexis Butterworths, 2009); A Dan Tarlock, *The Law of Water Rights and Resources* (West Publishing, 2008).

⁹³ Anthony Scott and Georgina Coustalin, 'Rights Over Flowing Water' in Anthony Scott (ed), *The Evolution of Resource Property Rights* (Oxford University Press, 2008) 63.

⁹⁴ Eg, the western USA, see Sasha Charney, *Decades Down the Road: an Analysis of Instream Flow Programs in Colorado and the Western United States* (Colorado Water Conservation Board, 2005).

⁹⁵ Poh-Ling Tan, 'A Property Framework for Water Markets: The Role of Law' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar, 2005) 56; John Freebairn, 'Principles and Issues for Effective Australian Water Markets' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar, 2005) 8; Anderson and Libecap, above n 61; R. Quentin Grafton et al, 'An Integrated Assessment of Water Markets: A Cross-Country Comparison' (2011) 5(2) *Review of Environmental Economics and Policy* 219.

⁹⁶ D E Fisher, 'Rights of Property in Water: Confusion or Clarity' (2004) 21 *Environmental and Planning Law Journal* 200; D E Fisher, 'Water Law, the High Court and Techniques of Judicial Reasoning' (2010) 27 *Environmental and Planning Law Journal* 85; Zachary Donohew, 'Property Rights and Western United States Water Markets' (2009) 53 *Australian Journal of Agricultural and Resource Economics* 85.

⁹⁷ In the case studies, I have used the specific terms adopted by law in those locations, see Chapters 2, 5-7, and Appendix A.

With these definitions in mind, the next section presents an overview of the approach used in the thesis.

B. *An overall approach: 'light' constructivism*

A legal constructivist view of nature, then, defines nature by implication from particular statements of law.⁹⁸

Legal constructivism emphasises the power of the law to construct its subjects, rather than simply finding existing subjects already in the world.⁹⁹ Naffine calls this a 'legalist' perspective, and argues that 'law constructs, rather than finds, its subject and that subject is not intended to reflect, in any direct way, real beings in the real world... law is always engaged in a process of constructing its subjects for legal purposes.'¹⁰⁰ This approach is particularly apparent when these constructs are explicitly created in statute, as is the case for water law and environment law.

However, the environment is clearly also a physical reality, and is not a mere construction of the law. In his analysis of the power of legal constructivism to embed environmental ethics within the law, Hirokawa identified both a 'hard' and a 'soft' form of social constructivism:

Hard constructivism is typically characterized by its existential thesis, which holds that nature is only a social construction. The softer thesis is merely an epistemological one, positing that our concept of nature is socially constructed.¹⁰¹

Applying a constructivist approach to the legal construction of the environment emphasises the softer thesis, as although the law can and does construct its subjects, the social construction of the environment remains related to the physical reality of the environment. Moreover, a constructivist approach 'acknowledges the historical and contextual contingencies of knowledge and meaning',¹⁰² and makes it possible to observe the multiple ways in which the environment is constructed in law, in order to enhance the legibility of the environment to law.

⁹⁸ Hirokawa, above n 53, 388.

⁹⁹ Gerry J Simpson and Hilary Charlesworth, 'Objecting to Objectivity' in Rosemary Hunter, Richard Ingleby and Richard Johnstone (eds), *Thinking About Law: Perspectives on the History, Philosophy and Sociology of Law* (Allen & Unwin, 1995) 86, 101.

¹⁰⁰ Naffine, *Law's Meaning of Life*, above n 4, 26.

¹⁰¹ Hirokawa, above n 53, 391, n 10.

¹⁰² Ibid, 401; see also the foundational work on legal constructivism, Bruce Ackerman, *Reconstructing American Law* (Harvard University Press, 1984).

In this thesis, I have applied a ‘lightly’ constructivist approach (based on Hirokawa’s ‘soft’ form) which enables engagement with the multiple ways that the environment is constructed within law, and supports examination of how and why these constructions have been created, without overlooking the physical reality of the environment itself. The lightly constructivist approach makes it possible to discern the connection between the construction of the environment in law, and the underpinning cultural narratives about the value of the environment. Making the environment legible to the law means that although the environment as a physical reality has not changed (although it may be altered as a result of the legal interventions), what has changed is the *relationship* of people to the environment.

This lightly constructivist approach is particularly useful for examining the example of the EWMs, because it offers a way to unpack the multiple ways that the aquatic environment is constructed in water law. Using this approach, the analysis never loses sight of the reality of the aquatic environment, but can untangle the different ways that the aquatic environment is constructed as a socio-ecological concept, a legal object and a legal subject within water law.

In this thesis, I bring together a lightly constructivist legal analysis of how water law constructs the aquatic environment, with an empirical examination of the creation and operation of the environmental water managers (EWMs). The precise methods used are outlined in the following sections, beginning with some definitions of particular terms used in the thesis.

C. *Specific methods: Legal analysis and empirical legal research*

In this thesis, I have used a combination of legal analysis and empirical legal research to answer the key thesis question (*what happens when the aquatic environment is constructed as a legal subject?*), by addressing each of the following sub-questions.

1. *How do the EWMs construct the aquatic environment as a legal subject?*

The EWMs are organisations with the attributes of legal personality, including the capacity to acquire and/or manage environmental water rights for the benefits of the aquatic environment, and they are created and operate within specific legal contexts. To understand how the EWMs construct the aquatic environment as a legal subject, the thesis must identify: where are the EWMs currently found? What legal forms do they take? What do they have in common? Do they require specific legal elements?

Chapter 2 answers these questions by conducting a review of water laws. This review found that the EWMs are present in 19 jurisdictions around the world, most of which are found in the USA and Australia.¹⁰³ In all instances where EWMs were located, the legal context includes modern water rights, water markets, and environmental water rights. This review demonstrates a strong correlation between the presence of the three legal elements and the existence of an EWM, by showing that EWMs are not found where one or more of these elements is missing from the legal context.¹⁰⁴

Chapter 2 establishes the critical importance of legal context for the EWMs. Firstly, they rely on specific powers attached to legal persons in water law frameworks to enable them to hold and manage water rights for the benefit of the environment. Secondly, they rely on the legal powers attached to personhood to support their participation in water markets (such as being able to enter contracts).¹⁰⁵ The powers and rights attached to the EWMs are critical for the transition of the aquatic environment from legal object to legal subject.

2. *How is the environment constructed in law?*

There are many different “environments”, each the focus of social and legal interest.¹⁰⁶

Chapter 3 considers the question of how the environment more generally has been constructed in law over time, to enhance the legibility of the environment to law. To do so, Chapter 3 undertakes a historical review of the way that law has constructed the environment, based on the academic literature and particular examples. This review shows that these myriad definitions of the environment can be understood as three main constructions of the environment, in response to three specific legal processes:

- 1) *Recognition* of the environment as a *socio-ecological concept*; followed by
- 2) *Translation* of that concept into a *legal object*; followed by
- 3) *Personification* of the environment as a *legal subject*.¹⁰⁷

Chapter 3 develops a new conceptual framework that identifies the multiple constructions of the environment in law, and their underpinning cultural narratives.

¹⁰³ Table 4, Chapter 2, 49.

¹⁰⁴ See Chapter 2; for more detail, refer to Appendix A.

¹⁰⁵ See Chapter 2, 52.

¹⁰⁶ Jo Goodie, 'The Invention of the Environment as a Subject of Legal Governance' in G Wickham and G Pavlich (eds), *Rethinking Law, Society and Governance: Foucault's Bequest* (Hart Publishing, 2001) 79, 80.

¹⁰⁷ Chapter 3, 87.

This conceptual framework is then used in Chapters 5-7 to identify the multiple constructions of the aquatic environment, and answer the question of what happens when the aquatic environment is constructed as a legal person.

3. *How is the aquatic environment constructed in water law?*

To analyse the creation and operation of the EWMs, I have used empirical legal research to engage with specific examples of EWMs.¹⁰⁸ There is a growing emphasis on empirical research as part of legal scholarship,¹⁰⁹ and environmental law is especially well-matched to an empirical approach, because environmental law is goal-oriented, and often depends on scientific evidence to achieve its goals.¹¹⁰ Understanding the intentions and effects of environmental law requires a realist engagement with a question of fact: what does the law do, to and for people?¹¹¹

To answer the question of how the aquatic environment is constructed in water law, and to identify the cultural narratives underpinning these constructions, the empirical research is conducted in the form of two case studies of the regions in which the majority of currently operating EWMs are located (south-eastern Australia and western USA). There are broad similarities between the forms of the EWMs in the case study regions, as well as the water law frameworks in which the EWMs are embedded,¹¹² but the case studies are also sufficiently different to generate useful comparisons. The two case studies have:

- Different water law origins and water rights;¹¹³
- A range of water market activity levels;¹¹⁴
- Sophisticated environmental water programs that have moved beyond protection into recovery and management of environmental water, using a range of different mechanisms and processes;¹¹⁵

¹⁰⁸ Frans L Leeuw and Hans Schmeets, *Empirical Legal Research: A Guidance Book for Lawyers, Legislators and Regulators* (Edward Elgar, 2016).

¹⁰⁹ Robert J Landry III, 'Empirical Scientific Research and Legal Studies Research—A Missing Link' (2016) 33(1) *Journal of Legal Studies Education* 165.

¹¹⁰ Fisher, *Australian Environmental Law*, above n 23; Godden and Peel, above n 23; Mark Stallworthy, *Understanding Environmental Law* (Sweet & Maxwell, 2008).

¹¹¹ Llewellyn, above n 57; it is acknowledged that empirical research is different to realism, but contemporary empirical legal research is based on a realist heritage, see Chapter 4.

¹¹² Chapter 2, 49-51.

¹¹³ Chapters 5 and 6.

¹¹⁴ See for example, Donohew, above n 96; National Water Commission, *Australian Water Markets Report 2011-12* (NWC, 2013).

¹¹⁵ Chapter 2, 30; see also Chapters 5 and 6.

- Diverse EWM organisational forms, including a range of public and private entities;¹¹⁶
- A range of EWM origins, including statutory creation and a more organic emergence in response to the problem of acquiring water for the environment; and
- Persistent activity of the EWMs in acquiring and managing environmental water over time (from the 1990s in the USA, and the 2000s in Australia).¹¹⁷

The case study methods use a combination of legal analysis of the constructions of the aquatic environment in law (including the EWMs), as well as long-form, semi-structured interviews with EWM staff.¹¹⁸ These interviews extend the publicly available information, and help to build an understanding of the way that the form and operation of the EWMs reflects the understanding and value of 'specific embodied knowers'.¹¹⁹ This approach also acknowledges the specific background of the primary researcher: I have worked in environmental water law and policy since 2003, and I have significant personal history in the creation and operation of some of the EWMs used in this study. The case studies are presented in Chapters 5 and 6.

4. *How do the constructions of the aquatic environment interact?*

Lastly, the findings of the case studies are brought together in Chapter 7 to answer the questions: how do the constructions of the aquatic environment in water law interact, and what happens when they do?

By considering the EWMs of both jurisdictions, it is possible to identify the legal powers the EWMs have, which legal powers they actually use, and why they make those choices. This analysis shows that there is a dominant cultural narrative underpinning the operation of the EWMs in each jurisdiction. The conceptual framework developed in Chapter 3 is applied to the EWMs to identify the relationship between the narratives and the regulatory response. In doing so, this joint analysis of the case studies uncovers the paradox of the EWMs: that a legally powerful form of the aquatic environment may be

¹¹⁶ O'Donnell and Garrick, above n 44; Garrick and O'Donnell, above n 7.

¹¹⁷ Steven Malloch, *Liquid Assets: Protecting and Restoring the West's Rivers and Wetlands through Environmental Water Transactions* (Trout Unlimited, 2005); Erin O'Donnell, 'Australia's Environmental Water Holders: Who is Managing Our Environmental Water?' (2013) 28(3) *Australian Environment Review* 508.

¹¹⁸ See Chapter 4 for detail on the research methods.

¹¹⁹ Juliana Mansvelt and Lawrence D Berg, 'Writing Qualitative Geographies, Constructing Geographical Knowledge' in Iain Hay (ed), *Qualitative Research Methods in Human Geography* (Oxford University Press, 2nd ed, 2005), 252.

undermining the community support for protecting the environment at all. The evidence for this paradox in the case of the EWMs is drawn from publicly available documents, the long-form interviews and the legal reforms that have been made in response to specific fears about the powers of the EWMs.

Although the findings of this particular thesis are embedded in the example of water law and the EWMs, by drawing on the conceptual framework developed in Chapter 3, this research connects these findings to environmental law more broadly, and makes the case for further research to establish more generalisable findings.

D. *Scope of this research*

Focusing on the specific examples of the EWMs in south-eastern Australia and the western USA supports a robust set of research findings, but these findings are necessarily limited. Although this research points to a broader problem in environmental law more generally, it is not intended, and does not claim, to present findings that can be applied universally without further investigation. However, by grounding the work in the detail of the EWMs, this thesis makes a strong case for further research to determine whether the paradox applies to other fields in environmental law, and if so, how the paradox can be mitigated.

One of the strengths of this research is that it has demonstrated the importance of the dialogue between the western USA and Australia on water resource management, and particularly, how each region can learn from the other to improve environmental water management.¹²⁰ The history of water law reform in the western USA and south-eastern Australia is one of continued conversation and knowledge exchange,¹²¹ and it is hoped that this thesis will continue this conversation. However, this research is not intended to be a comparative law thesis.¹²² The water law frameworks and EWMs of the two regions are compared only to enrich the analysis of the implications of constructing the

¹²⁰ See Chapters 5-7.

¹²¹ See, for example, discussions of water law and policy transfer in Dustin Evan Garrick, *Water Allocation in Rivers Under Pressure: Water Trading, Transaction Costs, and Transboundary Governance in the Western USA and Australia* (Edward Elgar, 2015); Robert David Pilz, 'Lessons in Water Policy Innovation From the World's Driest Inhabited Continent: Using Water Allocation Plans and Water Markets to Manage Water Scarcity' (2010) 14 *Water Law Review* 97; Michael Cathcart, *The Water Dreamers: the remarkable history of our dry continent* (The Text Publishing Company, 2009); Garrick, Lane-Miller and McCoy, above n 44; Garrick et al, above n 7.

¹²² Penelope (Pip) Nicholson and Sarah Biddulph (eds), *Examining Practice, Interrogating Theory: Comparative Legal Studies in Asia* (Brill | Nijhoff, 2008).

environment as a legal person.¹²³ This thesis highlights the two-way nature of this conversation, but does not support a legal or policy transfer without further work.¹²⁴

This research has drawn on legal analysis of water laws, and neo-classical economic analysis of water markets, to identify, describe and understand the creation and operation of the EWMs in Australia and the western USA. However, this thesis does not adopt the normative approach of 'law and economics' scholars,¹²⁵ and although efficiency is acknowledged as a goal of water markets, it is not the only measure of success.¹²⁶

The case studies have enabled detailed analysis of the water law frameworks and specific EWMs, but although the research undertaken was rigorous, it is beyond the scope of this thesis to demonstrate causal relationships. One of the emerging fields in law and economics scholarship is behavioural economics,¹²⁷ which offers great insight into why individuals can make what appear to be 'irrational' decisions. Chapter 8 examines how this growing field (and the capacity to undertake experimental)¹²⁸ could be used to further refine and develop our understanding of the way that people respond to multiple constructions of the environment.¹²⁹

III. THESIS OUTLINE

In this chapter, I have shown how the EWMs, as organisations with the rights and powers of legal subjects, can represent the aquatic environment in law. In doing so, they can provide insight into what happens when the aquatic environment is constructed as a legal person. This chapter highlights the importance of placing the EWMs within their legal, historical and social context, and shows that the analysis of the EWMs can shed

¹²³ See Chapters 4 and 7 for detail.

¹²⁴ For more on why such transfers should be carefully considered, see Rebecca Swainson and Rob C de Loe, 'The Importance of Context in Relation to Policy Transfer: a Case Study of Environmental Water Allocation in Australia' (2011) 28 *Environmental Policy and Governance* 58.

¹²⁵ For example, see Richard A Posner, *Economic Analysis of Law* (Aspen Publishers, 8th ed, 2011); Richard A Posner, 'The Economic Approach to Law' (1975) 53 *Texas Law Review*.

¹²⁶ Janice Gray, 'The Legal Framework for Water Trading in the Murray-Darling Basin: an Overwhelming Success?' (2012) 29 *Environmental and Planning Law Journal* 328.

¹²⁷ Christine Jolls, Cass Sunstein and Richard Thaler, 'A Behavioural Approach to Law and Economics' (1998) 50 *Stanford Law Review* 1471.

¹²⁸ Nicholas Bardsley et al, *Experimental Economics: Rethinking the Rules* (Princeton University Press, 2010).

¹²⁹ Ibid; see also Dan Ariely, *Predictably Irrational: the Hidden Forces that Shape Our Decisions* (HarperCollins Publishers, 2008); Daniel Kahneman, *Thinking, Fast and Slow* (Allen Lane, 2011).

light on broader environmental problems. The descriptions of the remaining chapters are brief, as much of the content has been covered above in the discussion of the methodology.

Chapter 2 presents a detailed literature review of the role of EWMs in environmental water management, and the legal form and powers of the EWMs. Chapter 2 also demonstrates the relationship between the EWMs and their legal context in water law, and shows how the EWMs construct the aquatic environment as a legal subject.

Chapter 3 places the analysis of the EWMs into the broader context of environmental law, and makes the connection between construction of the environment *in* law, and legibility *to* law. Chapter 3 develops a new conceptual framework that identifies the multiple constructions of the environment in law. This framework is applied to the case studies of the EWMs in Australia and the USA.

Chapter 4 details the methods used to undertake the case studies, including legal analysis, interviews and content analysis using NVIVO. The combination of detailed legal analysis and the interview data enables in a grounded explanation of the interaction between the multiple constructions of the environment in the water law of Australia and the USA.

Chapters 5 and 6 present the two case studies, which show how the aquatic environment is constructed in water law, and identify the cultural narratives underpinning these constructions. In each case, the aquatic environment is constructed in law as a socio-ecological concept, a legal object and a legal subject. Chapter 5 focuses on the EWMs of south-eastern Australia (the Murray-Darling Basin and southern Victoria). The EWMs are identified, and their legal form and legal capacities are specified, based on a review of relevant legislation and legal instruments. The EWMs of south-eastern Australia focus on both water recovery for the environment, and managing this water efficiently and effectively in the context of highly active water markets.

Chapter 6 examines the EWMs of the western USA (the Columbia River Basin and the state of Colorado).¹³⁰ The constructions of the aquatic environment are more complex in the USA than Australia, because of the western USA's reliance on the prior appropriation

¹³⁰ See Chapter 6 for why these specific locations were selected.

water law framework.¹³¹ The legal form and legal capacities of EWMs of this region are also more diverse, reflecting the increased role of private NGO EWMs. The EWMs of the Columbia River Basin and Colorado focus on water recovery for the environment by acquiring water to leave in stream, on a temporary or permanent basis, from other users. However, unlike Australia, the acquisitions are focused on improving efficiency (and keeping the original water user in business as well) rather than simply paying market prices for the water and transferring the water to a different use.

Chapter 7 combines the findings of each case study to consider how the multiple constructions of the aquatic environment in law interact, and the implications of an EWM's capacity to construct the aquatic environment as a legal person in water law. Chapter 7 uncovers the paradox of the EWMs: efforts to construct the environment as legally powerful can result in additional limits on the legal powers of the EWMs, and can undermine the narrative that the environment is worth protecting at all.

Chapter 8, as a concluding chapter, argues that the application of the conceptual framework to the example of the EWMs suggests that the paradox could affect environmental law more broadly. In different ways, both the legal rights to nature movement,¹³² and market environmentalism,¹³³ are seeking to give the 'environment' the legal rights and powers of a legal person, and both approaches are increasingly influential on the development of environmental law. Chapter 8 maps out future research ideas to increase our understanding of this paradox, and how to mitigate it.

IV. CONCLUSION

The EWMs are relatively new organisations created to acquire, hold and manage legal water rights on behalf of the environment, in conditions of scarcity, and by participating in water markets.¹³⁴ In doing so, they enable the aquatic environment (or part thereof) to be constructed in law as a legal subject, with the rights and powers of a legal person. This thesis examines the EWMs of Australia and the USA to answer the question: what happens when the aquatic environment is constructed as a legal subject?

¹³¹ For more on prior appropriation, see Chapter 6, 153-157; see also A Dan Tarlock, 'Prior Appropriation: Rule, Principle or Rhetoric?' (2000) 76 *North Dakota Law Review* 881.

¹³² Peter Burdon, 'The Rights of Nature: Reconsidered' (2010) 49 *Australian Humanities Review* 69; Michelle Maloney and Peter Burdon (eds), *Wild Law - In Practice* (Routledge, 2014).

¹³³ Anderson and Libecap, above n 61.

¹³⁴ Chapter 2, 41.

This chapter has also established the importance of understanding how the EWMs form part of the broader context of environmental law. This thesis will show that it is possible to identify broad trends in how the environment is constructed *in law*, in order to make it legible *to law*, and harness the power of the law to solve environmental problems.¹³⁵ In particular, this thesis develops a new conceptual framework that identifies three types of construction of the environment in law: a specifically ‘environmental’ socio-ecological concept,¹³⁶ a legal object protected by legal rules that limit the actions of others,¹³⁷ and a legal subject, with legal rights and powers. The conceptual framework connects these constructs with the processes that gave rise to them, and the cultural narratives that underpin them.¹³⁸

In the water law frameworks of south-eastern Australia and the western USA, each construction of the aquatic environment is underpinned by a cultural narrative, which shapes, and is shaped by, the activities of the EWMs. The creation and operation of the EWMs generates an unexpected paradox: a legally powerful construction of the environment can undermine the desire to protect the environment at all.

This introductory chapter has established the importance of understanding what happens when the aquatic environment is constructed as a legal person, and how legal and empirical analysis of the EWMs and their water law frameworks will be used to answer the thesis questions. The next chapter begins this work by providing the background on the EWMs: what they are, and where and how they operate within their specific legal contexts. Chapter 2 establishes the EWMs as the foundation for this research, and presents a global review of the creation and legal context of the EWMs.

¹³⁵ See Chapter 3 for more detail.

¹³⁶ Eg, Plater, above n 22.

¹³⁷ Eg, Fisher, *Australian Environmental Law*, above n 23.

¹³⁸ Chapter 3, 87.

Chapter 2

The Environmental Water Managers: Form and Function

I. INTRODUCTION

[W]ater is fundamental to life.¹

Chapter 1 identified water scarcity as an increasingly urgent environmental and social problem.² Fresh water supplies are a limited resource,³ and despite continued international attention,⁴ demand for water access, allocation and services continues to rise.⁵ When more water is extracted and diverted to meet private needs, there is less remaining in our rivers, wetlands and estuaries, and aquatic environments are suffering.⁶ The sustainable management of water resources is a critical challenge, and likely to be exacerbated under the effects of climate change on water availability.⁷

To combat the decline in aquatic ecosystem health, many countries are developing new laws and policies to set aside and protect environmental water, which is then used to provide flows essential for the maintenance of aquatic health.⁸ As a result, the aquatic

¹ Lee Godden and Jacqueline Peel, *Environmental Law: Scientific, Policy and Regulatory Dimensions* (Oxford University Press, 2010), 304.

² World Economic Forum, *Global Risks 2015* (World Economic Forum, 2015).

³ David B Brooks, Oliver M Brandes and Stephen Gurman (eds), *Making the Most of the Water We Have: the Soft Path Approach to Water Management* (Earthscan, 2011); although surface freshwater resources are typically renewed on a seasonal basis, they are limited for the duration of the period between renewals, and the situation can be even more complex when it comes to groundwater resources, some of which are 'fossil water' that has become isolated from rainfall and runoff.

⁴ For example, 2013 was the Year of International Water Cooperation.

⁵ J W Hall et al, 'Coping With the Curse of Freshwater Variability' (2014) 346 *Science* 429

⁶ Millennium Ecosystem Assessment, 'Ecosystems and Human Well-Being: Wetlands and Water Synthesis' (World Resources Institute, 2005); C J Vörösmarty et al, 'Global Threats to Human Water Security and River Biodiversity' (2010) 467 *Nature* 555.

⁷ Margaret A Palmer et al, 'Climate Change and World's River Basins: Anticipating Management Options' (2008) 6(2) *Frontiers in Ecology and the Environment* 81.

⁸ Tom Le Quesne, Eloise Kendy and Derek Weston, *The Implementation Challenge: Taking Stock of Government Policies to Protect and Restore Environmental Flows* (World Wildlife Fund UK, 2010); N LeRoy Poff and John H Matthews, 'Environmental Flows in the Anthropocene: Past Progress and Future Prospects' (2013) 5 *Current Opinion in Environmental Sustainability* 667; Angela H Arthington, *Environmental Flows: Saving Rivers in the Third Millennium* (University of California Press, 2012).

environment is becoming increasingly visible to water law in its own right, rather than simply being the space in which the law regulates access to water resources.⁹ One of the ways this has occurred is the creation of the environmental water managers (EWMs). The EWMs are organisations that have been created to increase the quantity of water available to the aquatic environment, by acquiring and managing water rights using water markets. To do so, they require a specific form that gives them the power and capacity to perform their required functions.

Chapter 1 identified the EWMs as environmental organisations with the attributes of legal personhood, and which raise the question: what happens when the aquatic environment is constructed as a legal subject? This chapter begins to answer this question by examining the specific functions that the EWMs have been created to perform, and how their legal form and activities combine to give them the rights and powers of legal persons to act on behalf of the aquatic environment. This chapter answers the sub-question: how do the EWMs construct the aquatic environment as a legal subject?

This chapter examines the emergence of environmental water managers (EWMs) around the world in response to how to address the problem of providing sufficient water to the environment.¹⁰ Firstly, the chapter locates the EWMs in the broader environmental flows law and policy literature. Inadequate environmental flows have driven legal reforms that frame the environment itself as something that needs water allocated to it. EWMs are part of the regulatory response to improve environmental flows in conditions of water scarcity, especially in jurisdictions where water acquisition and/or water management for environmental outcomes can be achieved through water trading.

Secondly, the chapter explores the ways in which the EWM makes the aquatic environment more *legible* to the law by giving it the rights and powers of a legal person. Most water law frameworks, if they recognize the environment at all, do so as a form of limitation on other uses of water, so that minimum flows may be protected, or

⁹ See overview of historical water resource laws in Anthony Scott and Georgina Coustalin, 'Rights Over Flowing Water' in Anthony Scott (ed), *The Evolution of Resource Property Rights* (Oxford University Press, 2008) 63; Carol M Rose, 'Energy and efficiency in the realignment of common law water rights' (1990) 19 *Journal of Legal Studies* 261. See Chapters 5 and 6 for more detail.

¹⁰ What is deemed 'sufficient' will depend on existing levels of aquatic health, and the social value of the environment.

environmental impacts given consideration when issuing new rights to water.¹¹ The EWM, however, enables the aquatic environment to take on the characteristics of a legal subject: an entity with the power to enter contracts, hold water rights, sue and be sued. Many EWMs are created as a body corporate,¹² and use this specific legal form as the basis for their legal rights.

However, legal personhood does not begin and end with the creation of an organisational form. Legal personality is also strengthened by the operation of the EWMs as decision-makers within their specific legal context. The EWMs operate at the confluence of three relatively recent water law reforms: modern water rights (transferable and separate from land), water markets (enabling transfers between users) and environmental water rights that have the same legal characteristics of the water rights held by other water users. This chapter presents the results of a global review of EWM operations and water law frameworks to demonstrate the connection between the emergence of EWMs and this legal context.

This chapter argues that this legal context for the EWMs combines with their legal form to create a threshold for constructing the aquatic environment as a legal person (as represented by the EWM organisations), by combining the capacity to bear legal rights and duties with the necessity of using those rights and duties.¹³

II. THE ENVIRONMENT IN WATER LAW: A TRANSITION

Historically, water law focused on the management of water resources between human users.¹⁴ Only relatively recently has water law also embraced the holistic, integrated management of aquatic systems.¹⁵ This initial emphasis on water as a resource to be used for consumptive purposes (i.e. irrigation, industry, urban, domestic and stock) meant that water rights were developed to support this consumptive use of water, and only

¹¹ Stephen Hodgson, *Modern Water Rights: Theory and Practice* (Food and Agriculture Organisation of the United Nations, 2006).

¹² See Tables 5 and 6 below, and further detail in Chapters 5 and 6.

¹³ See Ngaire Naffine, 'Who are Law's Persons? From Cheshire Cats to Responsible Subjects' (2003) 66(3) *Modern Law Review* 346, 350, 18, on the difference between capacity and competence.

¹⁴ Scott and Coustalin, above n 9.

¹⁵ The emphasis on integration can be traced to the *Dublin Statement on Water and Sustainable Development*, 1992, see Anil Agarwal et al, 'Integrated Water Resources Management: TAC Background Paper No. 4' (Global Water Partnership, 2000); Patrick Meire et al, 'Towards Integrated Water Management' in Patrick Meire et al (eds), *Integrated Water Management: Practical Experiences and Case Studies* (Springer, 2008) 1.

later adapted to the needs of environmental flows.¹⁶ Even prior to the establishment of a water market, water entitlements used for consumptive purposes had the typical characteristics of what economists refer to as a 'private good': rival use¹⁷ and low costs of exclusion.¹⁸ In addition, water users typically pay for water use, either as an annual fee or per volume of water used.¹⁹

Environmental use, however, has the typical characteristics of a public good: non-rival use²⁰ and non-exclusivity (or very high costs of exclusion). Increasing instream flows for the environment can improve the environment, but it is very costly (or impossible) to limit access to these benefits to those who pay for them, which means that non-payers can 'free-ride' on those who do.²¹ Indeed, in some cases, increased environmental water merely increases the reliability of water availability for a consumptive user downstream, with limited capacity to protect the enhanced flows.²² Environmental use of water is thus poorly adapted for a system that relies on clear rights to private goods, and the result is market failure: too small an allocation to the environment, and too large an allocation to consumptive use (from the overall perspective of what a particular society values).²³

In consequence, the environment's need for water is typically only identified in response to the observed problems of environmental degradation caused by over-use of water. From a legal perspective, water law has only been able to 'see' the environment once a

¹⁶ Daniel Connell, *Water Politics in the Murray-Darling Basin* (The Federation Press, 2007); Lawrence J MacDonnell, 'Return to the River: Environmental Flow Policy in the United States and Canada' (2009) 45(5) *Journal of the American Water Resources Association* 1087.

¹⁷ Water use is not completely rival, as some water makes its way back into the system via groundwater or irrigation outfalls, but this 're-use' is being reduced by increasingly efficient water distribution systems.

¹⁸ Jeffrey M Perloff, *Microeconomics: Theory and Applications with Calculus* (Pearson, Pearson International Edition ed, 2008); John Freebairn, 'Principles and Issues for Effective Australian Water Markets' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar, 2005) 8.

¹⁹ Seamus Parker and Robert Speed, *Agricultural Water Pricing: Australia* (Organisation for Economic Co-operation and Development, 2010); Dennis Wichelns, *Agricultural Water Pricing: United States* (Organisation for Economic Co-operation and Development, 2010).

²⁰ In some cases the environment may act as a consumptive user by extracting water from the river for use in wetlands, which is rival (although still not exclusive).

²¹ Lee S Friedman, *The Microeconomics of Public Policy Analysis* (Princeton University Press, 2002), 596.

²² New South Wales Government, *Shepherding environmental water* (accessed 27 January 2017) <<http://www.water.nsw.gov.au/water-management/water-recovery/water-shepherding>>.

²³ John Rolfe, 'Water Trading and Market Design' in Lin Crase (ed), *Water Policy in Australia: The Impact of Change and Uncertainty* (Resources For the Future, 2008) 202; Friedman, above n 21, 593-616; Terry L Anderson and Gary D Libecap, *Environmental Markets: A Property Rights Approach* (Cambridge University Press, 2014).

problem that affected the rights of other users occurred. For example, the decision to cap total water extraction in the Murray-Darling Basin, Australia, was in direct response to blue-green algal blooms and salinity, water quality problems that were exacerbated by insufficient river flows. The cap imposed a legal limit on other water users' ability to take and use water, and provided a legal mechanism for water law to engage with the environment to prevent further degradation.²⁴

This inability for the law to 'see' the environment until there is a real problem is certainly not unique to water law. One of the drivers for the emergence of modern environmental law was the recognition of the need to consider some problems as inherently 'environmental', rather than dealing with them using existing legal mechanisms such as tort law.²⁵ However, limits on the actions of other users, such as the cap, are still an incomplete form of visibility: the environment is only visible to water law obliquely, through the lens of the actions of other water users. Imposing limits on future actions also doesn't address the problem of existing environmental impacts. By recognizing the environment's need for water, water law has finally gone beyond limiting future impacts, by creating legal rights to water for the environment. This increases the volume of water (thus redressing the historical imbalance) and transitions the environment towards being visible to water law in its own right (as represented by the organisation holding the water rights).

However, there is often a substantial lag period between the creation of consumptive rights to water, and the creation of legal rights to water for the environment. For example, in south-eastern Australia, almost 100 years separated the commitment to developing water resources for irrigation and other consumptive purposes, and the realization that a healthy aquatic environment also required water.²⁶ The transition towards large onstream dams and state-supported irrigation schemes began in the

²⁴ Wally Cox and Peter Baxter, *Setting the Cap: Report of the Independent Audit Group* (Murray-Darling Basin Ministerial Council 1996); Murray-Darling Basin Commission, *Murray-Darling Basin Cap on Diversions Water Year 1997/98: Striking the Balance* (Murray-Darling Basin Commission, 1998).

²⁵ See Chapter 3, 59.

²⁶ Warren Musgrave, 'Historical Development of Water Resources in Australia: Irrigation Policy in the Murray-Darling Basin' in Lin Crase (ed), *Water Policy in Australia: The Impact of Change and Uncertainty* (Resources For the Future, 2008) 28, 29.

1880s,²⁷ but Australia's first commitment to providing environmental flows did not occur until 1967 (a legal allocation to the Macquarie Marshes as part of the Burrendong Dam construction) and the physical water was not provided until 1980.²⁸

The effect of this lag period means that environmental water laws have emphasised two distinct policy strategies:

- Protection of existing environmental flows to prevent further degradation of a highly-modified system, or to maintain the health of an under-used system; or
- Improvement of aquatic health by restoring environmental flows in a highly-modified system, and the management of those restored flows over time to achieve the maximum benefits.²⁹

A. *Protection and Maintenance*

To prevent further deterioration in the aquatic health of a water system, environmental flows policies, and the legal frameworks that implement them, take the form of protection and maintenance of existing environmental flows.³⁰ This approach requires an understanding of the hydrology and ecology of the river basin, and a clear identification of the social values and uses of the water. Connell argues that a minimum definition of environmental sustainability is 'that the region in question should be in an environmentally stable condition system-wide [at a level of health] that is acceptable to the wider community'.³¹ This definition demonstrates the interaction between the

²⁷ *The Irrigation Act 1886* (Vic) was the first legislation in Australia to vest all water in the Crown, and to significantly dilute riparian rights (s4), and other states soon did the same, see discussion in Connell, above n 16, 48-56, 75.

²⁸ National Water Commission, *Australian Environmental Water Management: 2012 Review* (Commonwealth of Australia, 2012), 13 ('*Australian Environmental Water 2012*').

²⁹ Avril Horne, Erin O'Donnell and Rebecca Tharme, 'Chapter 17: Mechanisms for Allocating Environmental Water' in Avril Horne et al (eds), *Water For the Environment* (Elsevier, in press); Erin O'Donnell and Dustin Garrick, 'Chapter 19: Environmental Water Organisations and Institutional Settings' in Avril Horne et al (eds), *Water For the Environment* (Elsevier, in press); Dustin Garrick and Erin O'Donnell, 'Exploring Private Roles in Environmental Watering in Australia and the US' in Jeff Bennett (ed), *Protecting the Environment, Privately* (World Scientific Publishing, 2016) 203.

³⁰ Brian D Richter et al, 'Ecologically Sustainable Water Management: Managing River Flows for Ecological Integrity' (2003) 13(1) *Ecological Applications* 206.

³¹ Connell, above n 16, 154.

ecology (the physical processes that enable environmental health), and the social values of the river, which determine the level of health required.³²

Protection and maintenance project cycles (described in Table 1)³³ emphasise setting limits on the extraction of water to protect the existing environmental flows, and to maintain those environmental flows over time. The legal mechanisms used to protect environmental flows involve placing limits on the way that other users can access water, such as a cap on water extraction, or flow-based limits on the timing of extractions.³⁴ Maintaining those flows depends on implementing a system of water accounting, and enforcing the limits on water extraction.

Table 1 Project cycle for protecting and maintaining environmental flows

Policy strategy	Elements	Actions
Protection	Policy	Set long-term goals for aquatic health
	Planning and community engagement	Identify values, assets, objectives, risks and prioritisation of actions
	Legal change	Establish the legal mechanism to give effect to the policy and planning
Maintenance	Monitoring	Monitor environmental outcomes in the short and long term
	Compliance	Enforce the legal mechanism using water accounting measures
	Evaluation and learning	Review the monitoring and compliance outcomes and feed this back into planning

Although the protection and maintenance project cycle described in Table 1 is most effective when applied in advance of significant water extraction or flow alteration, it is an essential first step in already-degraded systems, by protecting against any further degradation.³⁵ For this reason, most global reviews of environmental water policy

³² See also Terry Hillman's discussion of a 'working river', and the need to protect both the productive use of the resource, as well as satisfying a broader duty of care to the aquatic ecosystem, Terry Hillman, 'Ecological Requirements: Creating a Working River in the Murray-Darling Basin' in Lin Crase (ed), *Water Policy in Australia: The Impact of Change and Uncertainty* (Resources For the Future, 2008) 124, 125.

³³ This table is adapted from the table presented in A Horne and E O'Donnell, 'Decision Making Roles and Responsibility for Environmental Water in the Murray-Darling Basin' (2014) 18(2) *Australian Journal of Water Resources* 118, and O'Donnell and Garrick, above n 29.

³⁴ See, for example, the Murray-Darling Basin Cap, COAG, *Communiqué - Water Reform Framework* (Council of Australian Governments, 1994); Patrick A Byorth, 'Conflict to Compact: Federal Reserved Water Rights, Instream Flows and Native Fish Conservation on National Forests in Montana' (2009) 30 *Public Land and Resources Law Review* 35, where the federal reserved water rights act as a form of cap on further water extraction.

³⁵ The Murray-Darling Basin Cap is an example of applying this approach in an already degraded water system.

implementation have tended to focus on protection and maintenance strategies.³⁶ But many environmental flows programs have moved beyond this minimum standard of protecting existing flows, and are instead seeking to restore environmental flows.

B. *Restoration: Recovery and Management of Water*

Where existing levels of water extraction are causing environmental decline, and where this decline is considered undesirable,³⁷ the policy strategy focuses on the *restoration* of environmental flows.³⁸ This builds on the hydrological and ecological understandings obtained through the protection and maintenance strategies, and focuses on how to increase environmental flows to improve overall aquatic health. This typically requires the acquisition of additional water for the environment, although this is not always the case. For example, dam re-licensing in the USA has provided a significant opportunity to change the operation of dams to improve the timing of water delivery to the environment,³⁹ without necessarily increasing the volume of water available.⁴⁰ These forms of system optimization are important opportunities, but in many cases, there is simply not enough water for the environment at all. In many rivers in the western USA, existing water extraction is so severe that the rivers can regularly cease to flow during summer.⁴¹ In these circumstances, additional water must be recovered to improve the

³⁶ See, for example, Le Quesne, Kendy and Weston, above n 8; Rafik Hirji and Richard Davis, *Environmental Flows in Water Resources Policies, Plans, and Projects: Findings and Recommendations* (The World Bank, 2009).

³⁷ This assessment of undesirability can be made at a local level through the actions of a local community or NGO, or it can reflect the wishes of a state expressed via government policy.

³⁸ MacDonnell, above n 16; Murray-Darling Basin Authority, *The Living Murray Story: One of Australia's Largest River Restoration Projects* (Murray-Darling Basin Authority, 2011); Steven Malloch, *Liquid Assets: Protecting and Restoring the West's Rivers and Wetlands through Environmental Water Transactions* (Trout Unlimited, 2005).

³⁹ M Bowman, 'Legal Perspectives on Dam Removal' (2002) 52(8) *BioScience* 739.

⁴⁰ Brian D Richter and Gregory A Thomas, 'Restoring Environmental Flows by Modifying Dam Operations' (2007) 12(1) *Ecology and Society* <<http://www.ecologyandsociety.org/vol12/iss1/art12/>>; Karin Krchnak, Brian Richter and Gregory Thomas, *Integrating Environmental Flows into Hydropower Dam Planning, Design and Operations* (The World Bank, 2009).

⁴¹ See examples discussed in Malloch, above n 38. While Australian rivers tend not to run completely dry, the Murray-Darling Basin has suffered severe water quality impacts due to over-allocation, and water-dependent ecosystems adjacent to the mainstream of the river have repeatedly run dry, see P E Davies et al, *A Report on the Ecological Health of Rivers in the Murray-Darling Basin 2004-2007* (Independent Sustainable Rivers Audit Group for the Murray-Darling Basin Commission, 2008); Neville D Crossman et al, *Status of the Aquatic Ecosystems of the Murray-Darling Basin and a Framework for Assessing the Ecosystem Services They Provide: an Interim Report to the Murray-Darling Basin Authority from the CSIRO Multiple Benefits of the Basin Plan Project* (CSIRO: Water for a Healthy Country National Research Flagship, 2011).

ecological health of the rivers (and associated aquatic environments). Although occasional examples remain of alternative methods,⁴² water is typically recovered for the environment using two main methods: generating efficiency savings, or purchasing water from existing users.⁴³

Water saved by increasing water delivery and use efficiency can be recovered for the environment (which may also require a formal legal transfer of a water right to the environment). Efficiency savings involve changing the way that water is stored and delivered to increase the volume of water available to the environment.⁴⁴ Changing the infrastructure of water delivery can generate savings in water volume, which can be transferred to the environment.⁴⁵ For example, in 2010, Australia's federal government set aside \$AUD5.8 billion to invest in irrigation infrastructure to generate water savings for the environment as part of the *Water for the Future* program.⁴⁶ The infrastructure projects are currently ongoing, and water savings are progressively being allocated to the environment as the projects are completed. These efficiency savings have been created as new water rights which are then transferred to the Commonwealth Environmental Water Holder. In another example, in the western USA, the Deschutes River Conservancy has worked with irrigator groups to invest in piping or lining irrigation canals to generate water savings which were then protected as an instream flow right in the Crooked River.⁴⁷ In each of these examples, the volumetric savings achieved by reducing waste and losses during delivery were converted to water rights that were then

⁴² Such as creating environmental water through the regularisation of existing water entitlements, see Chapter 5, 135; see also Anita Foerster, 'Victoria's New Environmental Water Reserve: What's in a Name?' (2007) 11(2) *Australasian Journal of Natural Resources Law and Policy* 145; Productivity Commission, *Market Mechanisms for Recovering Water in the Murray-Darling Basin (Final Report, March)* (Productivity Commission, 2010).

⁴³ For more on the implementation of these methods in Australia and the USA, see Chapters 5 and 6.

⁴⁴ For a more general discussion of the role of efficiency to free up water for additional uses, see Peter Gleick, 'A Soft Path: Conservation, Efficiency and Easing Conflicts Over Water' in Bernadette McDonald and Douglas Jehl (eds), *Whose Water Is It? The Unquenchable Thirst of a Water-Hungry World* (National Geographic Society, 2003) 187.

⁴⁵ Notably, these savings are not necessarily going to result in improved environmental flows. Water accounting must be rigorous to ensure that efficiency results in additional environmental flows, and a formal legal transfer of the savings is also important; see Charles Batchelor et al, 'Do Water-Saving Technologies Improve Environmental Flows?' (2014) 518 *Journal of Hydrology* 140.

⁴⁶ Commonwealth of Australia, *Water For the Future: Improving On-farm Irrigation Efficiency March 2009* (Australian Government Department of the Environment, Water, Heritage and the Arts, 2009).

⁴⁷ Deschutes River Conservancy, *Water Conservation Program: Permanent Streamflow Protection* <<http://www.deschutesriver.org/what-we-do/streamflow-restoration-programs/water-conservation/>>.

formally transferred to the organisation holding those rights on behalf of the environment.

Water can also be acquired directly as a transfer from existing users. The western states of the USA have been using voluntary water transfers to acquire water for the environment since the mid-1990s.⁴⁸ Although each state has its own distinct water law, the voluntary transactions that involve existing water users being paid to transfer their water rights to the environment (on a temporary or permanent basis) has been widely effective in the states with a prior appropriation framework.⁴⁹ In the western USA,⁵⁰ these acquisitions are typically the result of one-on-one negotiations with existing water users,⁵¹ and the volume of water recovered through these transactions varies significantly between states.⁵² Australia has also made use of water purchase programs to recover water for the environment.⁵³ One of the earliest environmental water acquisition was the RiverBank program in New South Wales, which used tender programs to purchase water licences from existing users and made that water available to the environment.⁵⁴ The largest water purchase program in Australia is that of the Commonwealth government, who committed \$AUD3.2 billion to buying water rights from existing users for the environment in the Murray-Darling Basin.⁵⁵ To date, this program has recovered over 1160 gigalitres (in long-term average yield) across the basin.⁵⁶

⁴⁸ Janet C Neuman, 'The Good, the Bad and the Ugly: the First Ten Years of the Oregon Water Trust' (2004) 83 *Nebraska Law Review* 432.

⁴⁹ Malloch, above n 38.

⁵⁰ See Chapter 6.

⁵¹ John J Ferguson, Barbara Chilcott Hall and Brianna Randall, 'Private Water Leasing: Working Within the Prior Appropriation System to Restore Streamflows' (2006) 27 *Public Land and Resources Law Review* 1.

⁵² Dustin Garrick and Bruce Aylward, 'Transaction Costs and Institutional Performance in Market-Based Environmental Water Allocation' (2012) 88(3) *Land Economics* 536.

⁵³ See Chapter 5.

⁵⁴ NSW Government, *New South Wales RiverBank Business Plan Part A: Program Plan 2006-2011 Buying and Managing Water for the environment (2010 Update)* (Department of Environment, Climate Change and Water, 2010).

⁵⁵ Commonwealth of Australia, *Water for the Future: Restoring the Balance in the Murray-Darling Basin* (Australian Government Department of the Environment, Water, Heritage and the Arts, 2010).

⁵⁶ This program is now capped at 1500 GL long-term average yield, *Water Amendment Act 2015* (Cth), Schedule 1. For definition of long-term average yield, see Australian Government Department of Environment, *Progress of Water Recovery Under the Restoring the Balance in the Murray-Darling Basin Program* (30 November 2015) <<https://www.environment.gov.au/water/rural-water/restoring-balance-murray-darling-basin/progress-water-recovery>>.

The recovery and management project cycle is presented in Table 2.⁵⁷

Table 2 Project cycle for recovery and management of environmental water

Policy focus	Elements	Actions
Recovery	Planning and prioritization	Identify environmental water needs and prioritise projects
	Financing	Set budgets (acquisition and ongoing administration) and obtain funds
	Find available water	Investigate water efficiency projects Identify potential sellers, either through a water market or on a case-by-case basis
	Regulation review	Consider transaction impacts on water users
	Conflict resolution	Engagement and consultation
	Holding of water rights	Legal transfer process
	Monitoring	Contract compliance Water accounting
	Evaluation and learning	Review and feed back into planning to guide future acquisitions
Management	Policy	Set long-term goals for additional water use
	Planning	Identify values, assets, objectives, risks and prioritisation of actions depending on water availability
	Decision	Commitment to a specific watering plan to either use water rights in storage, or to continue acquisition programs to provide water instream
	Implementation	Use of water in accordance with plan, either through: 1) Delivery, carryover or trade; or 2) Re-acquisition of water rights in a particular location; or 3) Acquisition in an alternative location.
	Monitoring and reporting	Monitor water delivered offstream or instream and report on outcomes against the objectives
	Evaluation	Monitor environmental response and adapt policy and planning

As Table 2 shows, the recovery and management project cycle is more complex than the protection and maintenance cycle. Most water recovered for the environment requires financial investment, to either generate water savings (by investing in more efficient water infrastructure) or to pay existing water users to transfer it (via water purchase programs).⁵⁸ This decision to invest funds in water recovery increases the need to demonstrate efficacy and efficiency of these programs. A recovery proposal must demonstrate sufficient environmental benefit to justify the investment of funds, and the

⁵⁷ Table 2 is a more detailed version of the table in Garrick and O'Donnell, above n 29.

⁵⁸ See Chapters 5 and 6 for more detail on methods of water recovery. In both Australia and the USA, compulsory acquisition of water rights for the environment has been largely unworkable from a political perspective.

opportunity cost of not using that water for alternative purposes.⁵⁹ Further, the water must then be managed to generate the maximum environmental benefit.⁶⁰ The recovery and management project cycle therefore embeds an efficiency norm in both phases: firstly in determining how much water the environment should receive, and secondly, in managing that water most effectively to achieve the largest environmental outcome.⁶¹

As discussed below, the actions required to manage recovered water are dependent on the nature of the water right that has been recovered. For example, in Australia, water recovery has focused on water rights in storage.⁶² In this case, management requires the preparation of plans over the long and short term to use that water to achieve environmental benefit, either by delivering it to particular locations or by trading the water and investing the income in acquiring additional water or environmental water delivery infrastructure.⁶³ However, in the western USA, water recovery is both in the form of instream flow rights and water in storage.⁶⁴ Where instream flow rights are acquired, such as in the Columbia River Basin, management of water over time focuses on two main activities.⁶⁵ Firstly, the water acquisition contract must be complied with, and the environmental water manager may need to enforce their instream flow right against other water users, who may seek to take it in contravention of their existing water rights. In some states, water accounting proceeds on a complaints basis, so it will be up to the organisation that recovered the water to confirm whether their water is actually being delivered.⁶⁶ Secondly, many water acquisitions are temporary, so long term management requires the decision on whether to proceed with re-acquiring water in the same location again in the future. Finally, management of acquired water depends

⁵⁹ This opportunity cost can be assessed at a system wide level (which is often the case in Australia), or as part of the individual negotiation to acquire the water (which is more often the case in the western USA).

⁶⁰ A Horne, *An Approach to Efficiently Managing Environmental Water Allocations* (PhD Thesis, University of Melbourne, 2009).

⁶¹ For a discussion of the how this question of efficiency and efficacy plays out in environmental water management, see A Horne, J Freebairn and E O'Donnell, 'Establishment of Environmental Water in the Murray-Darling Basin - an Analysis of Two Key Policy Initiatives' (2011) 15(1) *Australian Journal of Water Resources* 7.

⁶² See Chapter 5 for more detail.

⁶³ See, eg, Victorian Environmental Water Holder, *Reflections: Environmental Watering in Victoria 2012-13* (State Government of Victoria, 2013).

⁶⁴ See Dustin Evan Garrick, *Water Allocation in Rivers Under Pressure: Water Trading, Transaction Costs, and Transboundary Governance in the Western USA and Australia* (Edward Elgar, 2015).

⁶⁵ See Chapter 6 for more detail.

⁶⁶ Garrick and O'Donnell, above n 29, 215.

on the ongoing availability of water markets to enable these transactions. Re-investment decisions will be shaped by the environmental outcomes achieved, as well as the price of water.

In many jurisdictions,⁶⁷ there has been real (although often incremental and fragmented) improvements in environmental flows. These improvements have been most notable in the western USA and the Murray-Darling Basin of Australia, where the emphasis is now on how to achieve efficient and effective environmental water recovery and management.⁶⁸ However, these recovery and management policies are dependent on water rights for the environment that receive the same legal protections as other users' rights, and can be transferred between users. In turn, enabling the environment to hold, use and manage these water rights requires the aquatic environment to have the legal rights and powers of a legal person.

C. *Modern Water Rights for the Environment*

Water as a commodity has an ultimate private use, either directly or indirectly; private rights are paramount... management of those rights is a public matter.⁶⁹

Environmental flows policies have historically focused on protection and maintenance, either as a first step or as a complete strategy.⁷⁰ As described above, this approach is built on a legal foundation of *protecting* the environment by *limiting* the actions of other water users, and positions the environment as a legal object, only visible to the law through the actions of others.⁷¹ However, as the focus of environmental flows policies and legal frameworks shifted to include restoration of flows, there was a need for a legal mechanism to enable a transfer of water from existing users to the aquatic environment, and a way of constructing legal rights to water for the aquatic environment itself.

⁶⁷ Arthington, above n 8; Rafik Hirji and Richard Davis, *Environmental Flows in Water Resources Policies, Plans, and Projects: Case Studies* (The World Bank Environment Department, 2009); Le Quesne, Kendy and Weston, above n 8.

⁶⁸ Garrick, above n 64.

⁶⁹ M Carter, 'Legal Providers – Turning Professional Towards 2000' (1998) *Water is Gold, Proceedings of 1998 National Conference and Exhibition, Irrigation Association of Australia* 5.

⁷⁰ Many countries continue to focus on this step, see eg, Le Quesne, Kendy and Weston, above n 8.

⁷¹ See Chapter 3. This approach underpins much of modern environmental law, see D E Fisher, *Australian Environmental Law: Norms, Principles and Rules* (Thomson Reuters, 2nd ed, 2010); Godden and Peel, above n 1; Zygmunt J B Plater, 'From the Beginning, a Fundamental Shift of Paradigms: a Theory and Short History of Environmental Law' (1994) 27 *Loyola of Los Angeles Law Review* 981.

Since the Dublin Principles of 1992, many countries have adopted what Hodgson calls 'modern water rights':⁷² a property rights approach to water access, where some form of property rights in water are held by individuals, separately from the land, and where rights to use water are identified under a consistent framework. This 'propertisation' of water rights stems from Dublin Principle 4, which called for the capacity to manage water resources as an economic good.⁷³ Such an approach depends on clear and unambiguous property rights in water that can be transferred between uses and users.⁷⁴ These modern water rights are highly context-specific, so engaging with the detail of these water rights requires understanding the detail of specific jurisdictions. As discussed below, the geographic case studies undertaken as part of this research are located in south-eastern Australia and the western states of the USA, so the water rights of these jurisdictions are discussed in more detail.⁷⁵

Modern water rights have been created via statute, such as in Australia,⁷⁶ or via common law, supported by statute where necessary, as in the western USA.⁷⁷ In each case, the application of the modern water rights to the problem of providing additional water for the environment was shaped by the historical context of water law reform in Australia and the western USA. Water law in both locations has been shaped by the need to respond to high levels of variability in water availability, both within and between years.⁷⁸

⁷² Hodgson, above n 11, 60.

⁷³ World Meteorological Organisation, *The Dublin Statement on Water and Sustainable Development* (June 1992) <<http://www.wmo.int/pages/prog/hwrrp/documents/english/icwedece.html>> (copy on file with author).

⁷⁴ D E Fisher, 'Markets, Water Rights and Sustainable Development' (2006) 23 *Environmental and Planning Law Journal* 100.

⁷⁵ For more detail on the case studies, see Chapter 4-6.

⁷⁶ In Australia, statutes replaced most common law rights to water between 1886-1914, see Chapter 5, 110.

⁷⁷ Sasha Charney, 'Decades Down the Road: an Analysis of Instream Flow Programs in Colorado and the Western United States' (Colorado Water Conservation Board, 2005); MacDonnell, above n 16; for more detail, see Chapter 6.

⁷⁸ Poh-Ling Tan, 'A Property Framework for Water Markets: The Role of Law' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar, 2005) 56; Garrick, above n 64.

In Australia, water remains vested in the Crown in each state,⁷⁹ and water use rights held by individuals are created in state legislation.⁸⁰ The transition towards transferable water rights was driven by the desire to encourage water transfers between consumptive users as a means to encourage efficient water use for high-value outputs.⁸¹ In 1994, the Council of Australian Governments committed to separating water rights from land, capping water entitlements in the Murray-Darling Basin and enabling transfer between water users.⁸² This commitment was reinforced in 2004, with the National Water Initiative actively embracing water markets as a mechanism for efficient use of water, underpinned by legally secure water rights.⁸³ This broad reform established 'modern water rights' and then enabled the acquisition of these rights for environmental flows. A range of environmental water recovery programs commenced that explicitly used water markets (either directly or via separate tender programs) or water donations to acquire water for the environment.⁸⁴ The National Water Initiative also explicitly committed to ensuring that environmental water had the same degree of statutory recognition and security as the water rights of other users, including the capacity for trade.⁸⁵ The water acquired via transfer from existing users retained its original legal form, and the environment has built a significant portfolio of water rights that are legally identical to the water rights of other users.⁸⁶

In the western USA, water rights confer a 'use' right under a system of prior appropriation, where the first person to divert the water to a beneficial use retains the right to have first call on that water each year.⁸⁷ Transition to readily transferable water rights, however, has been patchy. Although prior appropriation rights have always been technically transferable, the 'use it or lose it' requirement means that any transferor must

⁷⁹ Eg, see *Water Act 1989* (Vic) s 7; *Water Management Act 2000* (NSW) s 392. These statutory rights are not considered to be property rights in the legal sense, see Chapter 5, 110.

⁸⁰ The transition from riparian rights to statutory use rights began with Victoria's *Irrigation Act 1886*, and the other states rapidly followed.

⁸¹ Freebairn, above n 18, 10-12.

⁸² COAG, above n 34.

⁸³ COAG, *Intergovernmental Agreement on a National Water Initiative* (Council of Australian Governments, 2004).

⁸⁴ D Garrick et al, 'Water Markets and Freshwater Ecosystem Services: Policy Reform and Implementation in the Columbia and Murray-Darling Basins' (2009) 69 *Ecological Economics* 366.

⁸⁵ COAG, above n 83, 35(i-iii).

⁸⁶ Australian Government Department of Environment, *Environmental water holdings* (30 November 2015) <<https://www.environment.gov.au/water/cewo/about/water-holdings>>.

⁸⁷ A Dan Tarlock, 'Prior Appropriation: Rule, Principle or Rhetoric?' (2000) 76 *North Dakota Law Review* 881.

demonstrate that the water has been in use prior to the transfer, and that any change in location will not detrimentally affect downstream users.⁸⁸ The Colorado-Big Thompson water market remains one of the most successful at providing a mix of permanent and temporary transfers at arms' length in the western USA, with other markets being described as 'more akin to borrowing a cup of sugar from neighbours'.⁸⁹

Unlike Australia, where environmental water acquisition programs could build on the opportunities created by water right reform,⁹⁰ in the USA, the environmental water organisations were more likely to be driving reform to water law to support their ability to acquire water.⁹¹ In part, this reflects the significant legal reform required to recognise instream flows as a beneficial use of water (necessary for the environment to be recognised within the prior appropriation system).⁹² This process began in the 1950s,⁹³ and now all western states recognise instream flows.⁹⁴ However, the late recognition of instream flows meant two things: firstly, that instream flows were typically the most junior rights (and therefore likely to be unavailable to the environment during times of high water use), and secondly, as most rivers were fully appropriated before this recognition, instream flows could only be appropriated in a small number of rivers.⁹⁵ As a result, the environmental water recovery organisations had a vested interest in the transferability of water rights to improve instream flows, and have pioneered new processes and legislation to support the evolution towards modern water rights across the western USA.⁹⁶

⁸⁸ See discussion in Zachary Donohew, 'Property Rights and Western United States Water Markets' (2009) 53 *Australian Journal of Agricultural and Resource Economics* 85.

⁸⁹ Janis M Carey and David L Sunding, 'Emerging Markets in Water: A Comparative Institutional Analysis of the Central Valley and Colorado-Big Thompson Projects' (2001) 41 *Natural Resources Journal* 283, 283.

⁹⁰ For more detail on this 'unbundling' of water entitlements, and separating the right to hold water entitlements from the land on which that water may be used, see Chapter 5, 110.

⁹¹ Malloch, above n 38.

⁹² A Dan Tarlock, 'Appropriation For Instream Flow Maintenance: A Progress Report On "New" Public Western Water Rights' (1978) *Utah Law Review* 211.

⁹³ Oregon was the first, in 1955, see Janet C Neuman and Cheyenne Chapman, 'Wading into the Water Market: the First Five Years of the Oregon Water Trust' (1999) 14 *Journal of Environmental Law and Litigation* 135.

⁹⁴ MacDonnell, above n 16.

⁹⁵ Brandon Scarborough, *Environmental Water Markets: Restoring Streams Through Trade* (Property and Environment Research Centre, 2010).

⁹⁶ Garrick et al, above n 84; Ferguson, Chilcott Hall and Randall, above n 51.

Although the specifics of water rights in south-eastern Australia and western USA remain significantly different (and are explored in more detail in Chapters 5 and 6 respectively), their application for environmental purposes is strikingly similar. In each jurisdiction, the environment has acquired additional water through voluntary transactions (donations, one-on-one negotiated contracts, tenders, or on the water market), and the water rights thus acquired retain their capacity to be traded to another water user, as well as being used for environmental flows. The flexibility of these modern water rights acquired for the environment requires an organisation with the capacity to actively decide how best to use their water rights in any given year to achieve the maximum benefit for the aquatic environment. These *environmental water managers* (EWMs) are responsible for the recovery and management of the water required to restore the environmental flows, and embody the shift towards restoration (rather than protection) of aquatic health.⁹⁷ The capacity to hold environmental water rights that require active management and decision-making is the hallmark of an EWM.

III. ENVIRONMENTAL WATER MANAGERS (EWMs)

EWMs are organisations that hold environmental water rights, and make decisions on how to use those rights to achieve the maximum environmental outcome. EWMs focus on restoration of environmental flows to (partially or fully) dewatered systems by acquiring additional water rights on behalf of the environment. As a result, environmental water managers (EWMs) are relatively new organisations,⁹⁸ as the shift in environmental flows policy and legal frameworks from protection against further degradation, to restoration and improvement is a recent one.⁹⁹

EWMs include government and non-government entities, operating at a range of scales and in diverse hydrological conditions. Whilst in some cases they may also be advocates for developing new environmental flows policies, they are fundamentally agents of

⁹⁷ J Pittock and B A Lankford, 'Environmental Water Requirements: Demand Management in an Era of Water Scarcity' (2010) 7(1) *Journal of Integrative Environmental Sciences* 75.

⁹⁸ In Australia, government environmental water managers were created after 2007, and NGO water trusts have been operating for around ten years. Some of the EWMs from the USA have their roots in organisations created in the 1980s, but their modern forms are much more recent.

⁹⁹ Horne, O'Donnell and Tharme, above n 29; O'Donnell and Garrick, above n 29.

implementation. EWMs are currently found in Australia, the western USA, Mexico and Canada.¹⁰⁰

EWMs have a number of features in common: they have a clear organisational identity; they acquire and/or manage environmental water rights; and the water rights that they hold are transferable and can be traded via the water market.¹⁰¹ Traditionally, EWMs have been described based on their activities and role in broader water governance frameworks.¹⁰² Until recently, little attention has been paid to their legal forms and powers, and the way they have been constructed as organisations.¹⁰³ One of the unique contributions of this thesis is to define EWMs in a way that focuses on the combination of their legal form, legal powers, objectives and activities. An environmental water manager (EWM):

- (1) is an *identifiable* organisation or agency with *legal personhood*;
- (2) has a *specific objective* to improve the health of aquatic ecosystems and to maintain these improvements over time; and
- (3) has the *capacity to acquire and/or manage water rights* for the environment in order to achieve that objective.¹⁰⁴

Each element of this definition is worth further discussion. Firstly, EWMs are identifiable as organisations, and it is this entity that has legal personality. The activities they undertake, the water rights they acquire (and/or continue to hold), and the decisions

¹⁰⁰ This research has also been published as Erin O'Donnell, 'Common Legal and Policy Factors in the Emergence of Environmental Water Managers' in C A Brebbia (ed), *Water and Society II* (WIT Press, 2013) 321.

¹⁰¹ Each of these elements are discussed in more detail in this chapter, and are explored in Chapters 5 and 6.

¹⁰² See, eg, Horne and O'Donnell, above n 33; Dustin Garrick, Chelsea Lane-Miller and Amy L McCoy, 'Institutional Innovations to Govern Environmental Water in the Western United States: Lessons for Australia's Murray-Darling Basin' (2011) 30(2) *Economic Papers* 167; Garrick and Aylward, above n 52; Garrick et al, above n 84; Lin Crase, Brian Dollery and Sue O'Keefe, 'Managing Environmental Water: Lessons in Crafting Efficient Governance Arrangements' (2011) 30(2) *Economic Papers* 122.

¹⁰³ For examples of the recent emphasis on the EWM as a legal form, see Erin O'Donnell, 'Australia's Environmental Water Holders: Who is Managing Our Environmental Water?' (2013) 28(3) *Australian Environment Review* 508; Erin O'Donnell, 'Institutional Reform in Environmental Water Management: the New Victorian Environmental Water Holder' (2012) 22 *Journal of Water Law* 73.

¹⁰⁴ This definition has been previously published in O'Donnell, 'Common Legal and Policy Factors', above n 100.

they make are clearly identifiable.¹⁰⁵ This is an essential element of accountability: EWMs acquire and manage environmental water, and they do so using public funds (from the relevant government or through philanthropic donations). EWMs have what Hart has termed *role-responsibility*, where they are responsible for performing the functions of managing environmental water; and *liability-responsibility*, where they are answerable to the public (or the philanthropic donors) for how well they have performed those functions.¹⁰⁶ EWMs are accountable for the performance of their functions in acquiring and managing environmental water, and clarity of identity enables identification of who is making the decisions, and why. The identifiability of EWMs also enhances their capacity to represent the aquatic environment. EWMs take legal personhood in a variety of ways (as a corporation, a statutory corporation or a trustee), and as legal persons, they can extend this legal form to the aquatic environment. This enables the EWMs to represent the aquatic environment in court, in water planning and water policy making. For example, the Commonwealth Environmental Water Holder in Australia has a seat in the water services committees in New South Wales, giving it a voice in the broader water planning debates.¹⁰⁷

Secondly, while an EWM may have a range of objectives (such as raising awareness and community engagement), there is one dominant objective: to improve the health of aquatic ecosystems by increasing environmental flows. EWMs achieve this by acquiring additional water for the environment, and/or managing that water efficiently and effectively. This means that the activities of the EWM are focused on aquatic ecosystems, rather than a more general environmental remit. This distinguishes EWMs from other environmental organisations. EWMs also operate over time: they acquire (and/or manage) water in an ongoing way to improve aquatic health. Even where water acquisition programs are intended to eventually come to an end,¹⁰⁸ the requirement to

¹⁰⁵ This identifiability is established at the organisational level in Australia (where government EWMs have been established as independent entities); and in the USA, the identifiability is often split between the EWM who recovers the water (usually a NGO) and the EWM who holds the instream flow rights (usually a government EWM); see Chapters 5 and 6.

¹⁰⁶ H L A Hart, *Punishment and Responsibility* (Clarendon Press, 1968), 211-230; Ian Thynne and John Goldring, *Accountability and Control: Government Officials and the Exercise of Power* (Law Book Company Limited, 1987), 1-10.

¹⁰⁷ See Chapter 5, 140-147; Chapter 7, 201-206.

¹⁰⁸ The Australian Commonwealth government water acquisition program is intended to transition to the new sustainable diversion limit, with no further acquisitions. However, the water acquired will require ongoing management.

generate efficient outcomes means that their management of water will continue.¹⁰⁹ This requirement to continue to maintain improvement in aquatic health over time, and to do so efficiently, also serves to distinguish EWMs from organisations who contribute to environmental flows as a one-off event. For example, a range of government departments and environmental NGOs around the world have contributed to a single environmental water recovery event, without necessarily having ongoing responsibility for maintaining the improvements achieved.¹¹⁰ The ongoing relationship between the EWMs and the aquatic environment is an important part of their ability to construct the aquatic environment as a legal person.

Finally, the capacity to legally acquire water rights for the environment is essential for an EWM. This is not a trivial qualification, and, in many cases, has required legal reform to recognize the environment as a legitimate user of water, and create the organisational capacity to hold water on behalf of the environment.¹¹¹ In some jurisdictions in the western USA (such as Washington and Colorado), this organisational capacity is limited to a single organisation (a government agency), but other EWMs often initially acquire the water for the purposes of environmental flows. Formal recognition of the acquired water as environmental flows occurs once the acquired water rights are transferred to the relevant body. Both the original acquirer of the water rights and the final recipient (who converts them legally to environmental water rights) can be EWMs, provided that both have an objective to acquire water to improve aquatic ecosystems.

In summary, the EWMs have emerged in response to two important shifts in environmental water law and policy: the transition of environmental flows policies from protection into restoration, and the creation of modern water rights for the environment, transferable to and from other users. EWMs are distinct organisations with legal personhood,¹¹² which they use to acquire and/or manage environmental water rights in the water market. They use this water to improve aquatic health over time. The EWMs

¹⁰⁹ Horne, above n 60.

¹¹⁰ O'Donnell, 'New Victorian Environmental Water Holder', above n 103, 79. See also M A Siebentritt (ed), *Water Trusts: What Role Can They Play in the Future of Environmental Water Management in Australia? Proceedings of a Workshop held on 1 December 2011* (Water Trust Alliance and Australian River Restoration Centre, 2012).

¹¹¹ For a discussion of the necessary legal reform in the USA, see Charlton H Bonham, 'Perspectives From the Field: a Review of Western Instream Flow Issues and Recommendations for a New Water Future' (2006) 36(4) *Environmental Law* 1205; MacDonnell, above n 16. For a discussion of Australian legal reform, see Horne and O'Donnell, above n 33; O'Donnell, 'Australia's Environmental Water Holders' above n 103.

¹¹² See Chapter 2, 52-56, and Chapters 5 and 6.

represent a significant step forward in environmental water management, and this is contingent on their legal personality.

IV. CONSTRUCTING THE AQUATIC ENVIRONMENT AS A LEGAL SUBJECT

The EWM is a new legal construction of the aquatic environment within water law, and more broadly, within environmental law. The EWM makes the aquatic environment visible to law, through the twin processes of *creation* of the legal person (the EWM organisation with the capacity to hold and manage water rights for the environment) and the *operation* of the EWM in the context of modern water law and water markets (the legal context).

The following sections examine each of these processes (and their contributions to the enhanced visibility of the aquatic environment to law) separately. Firstly, the legal context of the EWMs is considered in detail, to demonstrate how important this context is for the capacity of the EWMs to exist and operate. Secondly, the creation of the EWM as a legal person to operate within that legal context is explored as providing a threshold for legibility of the aquatic environment to the law.

A. *Legal context of the EWMs*

It is clear that the EWM has emerged in response to a particular problem, and has done so within a particular legal context. This legal context occurs at the confluence of three key water law reforms:

- 1) *Modern water rights*: property rights in water held by individuals, separately from land, where rights to use water are identified under a consistent framework;¹¹³
- 2) *Water markets*: where water rights are capped (by regulation or physical limits) and transfers between users are encouraged by legal processes that refine property rights in water, clarify ownership and provide full information to potential buyers and sellers;¹¹⁴ and

¹¹³ The terminology of Hodgson, above n 11, is used as a way of describing multiple reforms to the legal nature of water rights in a range of jurisdictions around the world. Whilst 'modern' is a loaded word, in this instance, it is used to reflect a recent shift towards transferable, clearly defined rights to water.

¹¹⁴ Fisher, above n 74.

- 3) *Legal rights to water for the natural environment*: where the natural environment is legally recognized as a legitimate user of water, and where at least some of that water is held as modern water rights.¹¹⁵

Modern water rights and environmental water rights have typically emerged as statutory frameworks (in Australia), or statutory reforms to common law (in the USA). Water markets often depend on particular statutory reforms to support their operation (such as the creation of a water register, and the legal process for transfer).

To confirm the relationship between the creation of the EWMs and this legal context, a review of water law around the world was conducted in 2013.¹¹⁶ This review was conducted using a three-step process, based on information in the public domain. This review represents a significant original contribution of this research, and is the first comprehensive review to illustrate the relationship between environmental water policy implementation and other water rights reforms at a global scale.

As a first step, the jurisdictions where EWMs were known to be present (based on a literature review) were assessed against the three legal features of modern water rights, water markets and water rights for the environment.

As a second step, the WaterLex database,¹¹⁷ other international reviews¹¹⁸ and additional unpublished research conducted by the University of Melbourne Law School Library¹¹⁹ were examined to identify the countries (and, where relevant, states and provinces within them) with 'modern water rights'.¹²⁰ Modern water rights are essential for the development of water markets: unless water rights are clearly defined and transferable,

¹¹⁵ See Donohew, above n 88, for data on the transactions from agriculture to the environment in the western USA; see also *Australian Environmental Water 2012*, above n 28, for a review of Australia's legal water rights for the environment, and Australian Government Department of Environment, *Progress of water recovery*, above n 56, for a list of water rights acquired for the environment.

¹¹⁶ The results of this review have been presented at a conference and published in O'Donnell, 'Common Legal and Policy Factors', above n 100.

¹¹⁷ Food and Agriculture Organisation of the United Nations, *Legal Office WaterLex* (6 August 2012) <<http://faolex.fao.org/waterlex/index.htm>>.

¹¹⁸ R Maria Saleth and Ariel Dinar, *The Institutional Economics of Water: A Cross-Country Analysis of Institutions and Performance* (Edward Elgar and The World Bank, 2004); R. Quentin Grafton et al, 'An Integrated Assessment of Water Markets: A Cross-Country Comparison' (2011) 5(2) *Review of Environmental Economics and Policy* 219; Hodgson, above n 11.

¹¹⁹ This research was conducted on 6 August 2009 at the request of Professor Lee Godden and kindly made available for this review. A copy of the research is on file with the author.

¹²⁰ Terminology from Hodgson, above n 11.

water markets will not be possible, although some informal water sharing arrangements may be present. Modern water rights also underpin the allocation of such rights to the environment, and require the environment to be constructed as a legal person capable of holding such rights. Therefore, unless modern water rights are present, the remaining legal reforms will not occur. As a result, the presence or absence of modern water rights was used as a gateway test for the next steps in the review.

Once jurisdictions with modern water rights had been identified, the third step involved reviewing these jurisdictions for the presence of the remaining features (water markets and environmental water rights). These searches were conducted using a combination of general and academic literature, and the search terms are presented in Table 3.¹²¹

Table 3 Search terms for each condition of the review

Condition	Search terms
1 – transferable property rights separate from land	N/A (see discussion of second step)
2 – water markets	[jurisdiction name] + “water markets” [jurisdiction name] + “water trade” [jurisdiction name] + “water transfers”
3 – environmental water rights	[jurisdiction name] + “environmental water” [jurisdiction name] + “environmental flows” [jurisdiction name] + “instream flows” [jurisdiction name] + “water conservation”
Presence of EWM (this search was only conducted if an EWM had not been already identified in this location)	[jurisdiction name] + “environmental water management” [jurisdiction name] + “NGO environmental flow” [jurisdiction name] + “water conservation licence”

The detailed results of this review are presented in Appendix A.

Although this review and the legal analysis underpinning it are important, it is likewise important to acknowledge that the scope of this review was limited to publicly available material, and this imposed two key limits on the findings. Firstly, the urgency of freshwater resource management problems is continually driving water reform, so some recent reforms, particularly in non-English speaking countries, may not have been included. Other international reviews based on surveys or direct contact with jurisdictions have been used to provide additional coverage, but these reviews are now several years old. Secondly, it is also likely that informal water trading occurs in some

¹²¹ These internet searches were conducted using Google (for general information, NGO and government websites, as well as publicly available literature) and the University of Melbourne Library ‘Discovery’ search (for academic literature). For more information on the Discovery service, please see: The University of Melbourne, *Discovery* (18 October 2012) University Library <<http://unimelb.libguides.com/discovery>>.

jurisdictions without formal legal acknowledgement and recognition, therefore these jurisdictions will not have formed part of this review. In spite of these limitations, this review demonstrates the importance of these legal reforms for environmental water implementation, and should be a driver for further research.

1. Results of the review step 1: Where are the EWMs?

EWMs are found in 19 jurisdictions around the world, most of which are found in the USA and Australia (Table 4).¹²² In all instances where EWMs were located, all three legal elements were present, demonstrating the link between creation of EWMs and the legal context of modern water rights, water markets and environmental water rights (see Appendix A for the full table of results).

Table 4 Jurisdictions with EWMs

Jurisdiction	Environmental Water Manager
Australia (Federal)	Commonwealth Environmental Water Holder (CEWH) and the Murray Darling Basin Authority (MDBA), which holds The Living Murray water) ¹²³
Australia: Australian Capital Territory	CEWH and MDBA ¹²⁴
Australia: New South Wales	RiverBank (OEH); ¹²⁵ Environmental Water Trust, ¹²⁶ Murray-Darling Wetlands Working Group Ltd; ¹²⁷ water also provided by Healthy Rivers Australia, the CEWH and MDBA ¹²⁸
Australia: Queensland	CEWH and MDBA ¹²⁹
Australia: South Australia	Healthy Rivers Australia ¹³⁰ and Water For Nature; ¹³¹ water also provided by the CEWH and MDBA ¹³²
Australia: Victoria	Victorian Environmental Water Holder (VEWH); ¹³³ water also provided by the CEWH and MDBA ¹³⁴
Canada: Alberta	Water Conservation Trust of Canada ¹³⁵

¹²² This table has been published in O'Donnell, 'Common Legal and Policy Factors', above n 100.

¹²³ *Australian Environmental Water 2012*, above n 28.

¹²⁴ *Ibid.*

¹²⁵ NSW Government, above n 54; this water is now held and managed by the NSW Office of Environment and Heritage. This transition back to a government department without an identifiable environmental water decision-maker means that this water is no longer held by an identifiable EWM.

¹²⁶ Environmental Water Trust, *What is the Environmental Water Trust?* <<http://environmentalwatertrust.org.au/>>.

¹²⁷ Murray Darling Wetlands Working Group Ltd, *Home page*, <<http://www.murraydarlingwetlands.com.au/>>.

¹²⁸ *Australian Environmental Water 2012*, above n 28.

¹²⁹ *Ibid.*

¹³⁰ Healthy Rivers Australia, *Strategic Plan Brochure* <<http://www.healthyrivers.org.au/>>.

¹³¹ Water For Nature, *Welcome to Water For Nature* <<http://www.waterfornature.org.au/>>.

¹³² *Australian Environmental Water 2012*, above n 28.

¹³³ O'Donnell, 'New Victorian Environmental Water Holder', above n 103.

¹³⁴ *Australian Environmental Water 2012*, above n 28.

Jurisdiction	Environmental Water Manager
Mexico	NGOs on transboundary rivers (eg, Environmental Defense Fund and Pronatura Noroeste); World Wildlife Fund water trust on Rio Grande ¹³⁶ and Colorado River Delta Water Trust ¹³⁷
USA: Arizona	Private (Nature Conservancy) ¹³⁸
USA: California	Federal (Dept of Interior Water Acquisition Program) and private NGOs (Sierra Water Trust, Sanctuary Forest Mattole Flow; Scott River Water Trust); previously the State Environmental Water Program ¹³⁹
USA: Colorado	State (Colorado Water Conservation Board) and private (Colorado Water Trust) ¹⁴⁰
USA: Idaho	Statutory instream water flows in Snake River and Lemhi River (local Lemhi water bank) ¹⁴¹
USA: Montana	State (Montana Fish, Wildlife and Parks) and private (Trout Unlimited, Clark Fork Coalition) ¹⁴²
USA: Nevada	State Department of Wildlife permanent water purchase program, National Fish and Wildlife Foundation Walker Basin Program ¹⁴³
USA: New Mexico	Middle Rio Grande Endangered Species Collaborative Program ¹⁴⁴
USA: Oregon	Freshwater Trust, Deschutes River Conservancy, Klamath Basin Rangeland Trust ¹⁴⁵
USA: Texas	State (Texas Water Trust) and private (specific river NGOs leasing water as well as river rehabilitation) ¹⁴⁶
USA: Utah	State (Division of Wildlife) and private (Utah Trout Unlimited) ¹⁴⁷
USA: Washington	State (Dept of Ecology established state government water trust) and private (Washington Water Trust and other NGOs) ¹⁴⁸

¹³⁵ Water Conservation Trust of Canada, *History* <<http://www.waterconservationtrust.ca/about-us/history/>>; CNW, 'ConocoPhillips Canada First to Donate Water', *Canada News Weekly* (online), 9 June 2010 <<http://www.newswire.ca/en/story/679905/conocophillips-canada-first-to-donate-water>>.

¹³⁶ Le Quesne, Kendy and Weston, above n 8.

¹³⁷ Sonoran Institute, *Delta Water Trust: Water For Life* <<http://www.sonoraninstitute.org/where-we-work/northwest-mexico/delta-water-trust.html>>; see also Sonoran Institute, *Colorado River Delta Restoration Project: A Plan of Action* (Sonoran Institute, (copy on file with author).

¹³⁸ Scarborough, above n 95.

¹³⁹ Ibid, Larry R Brown, Wim Kimmerer and Randall Brown, 'Managing Water to Protect Fish: a Review of California's Environmental Water Account, 2001-2005' (2009) 43 *Environmental Management* 357; American Rivers, *Protecting California's Flowing Rivers* <<http://www.americanrivers.org/your-region/california/program-work/protecting-californias.html>>; Malloch, above n 38.

¹⁴⁰ Scarborough, above n 95, Malloch, above n 38.

¹⁴¹ Scarborough, above n 95, Malloch, above n 38.

¹⁴² Scarborough, above n 95, Malloch, above n 38.

¹⁴³ Scarborough, above n 95, Malloch, above n 38.

¹⁴⁴ Middle Rio Grande Endangered Species Collaborative Program, *About* <<http://www.middleriogrande.com/Default.aspx?tabid=174>>.

¹⁴⁵ Scarborough, above n 95, Malloch, above n 38.

¹⁴⁶ Scarborough, above n 95, Malloch, above n 38.

¹⁴⁷ Utah Code Annotated § 73-3-30; Prettyman, B *Fishing: Sharing H₂O to 'grow the flows'*, The Salt Lake Tribune (online), 27 April 2011 <<http://www.sltrib.com/sltrib/outdoors/51657325-117/bess-bill-dahle-dave.html.csp>>.

¹⁴⁸ Scarborough, above n 95, Malloch, above n 38.

Each of the jurisdictions in Table 4 included each of the three elements of the legal context necessary for the emergence of the EWMs and the construction of the environment as a legal person (as described above). Implementation of these elements is shaped by the specific history of water resource management in each location, but each element was substantially implemented, for example:

- 1) For modern water rights: there was a public register of water rights,¹⁴⁹ where each water right is clearly defined in terms of reliability, security and ownership;
- 2) For water markets: active markets with public exchange platforms, or at the very least, a volume of environmental water transactions demonstrating a clear willingness to trade; and
- 3) For environmental water rights: at least some of the environmental water has clearly identified rights for the environment with the same legal protections and capacities as other users' water rights.

Although the legal context in which the EWMs operate is broadly similar, the variability in the implementation of the legal elements provides further insight into the link between EWMs and the water resource management framework, and how the EWMs have been constructed in law.

Firstly, in Mexico, although water rights can be traded separately to land, intersectoral transfers (i.e. transfers from one 'sector' of users to another) are limited by rules that do not allow water transfers outside the irrigation district boundaries, and within those boundaries, specific 'irrigation' licences are required.¹⁵⁰ One of the NGOs operating in the Colorado River Basin, Pronatura Noroeste, has tackled this problem by purchasing the land with riparian vegetation, then acquiring irrigation licences for that land, and delivering the purchased environmental water to those locations.¹⁵¹ This situation reflects the incremental nature of change in water law, and the gradual adjustment to full legal recognition of the environment as a legitimate user of water.

Secondly, according to the reported water transactions available in the literature, two states with active EWMs do not have very active water markets (although leases and

¹⁴⁹ A leading example is Victoria's Water Register, see State of Victoria, *Victorian Water Register* (2016) <<http://waterregister.vic.gov.au/>>. Not all jurisdictions meet this standard, but they have some form of publicly accessible registers of water rights.

¹⁵⁰ Jesus R Gastélum, Juan B Valdés and Steven Stewart, 'An Analysis and Proposal to Improve Water Rights Transfers on the Mexican Conchos Basin' (2009) 11 *Water Policy* 79, 87.

¹⁵¹ Le Quesne, Kendy and Weston, above n 8, 51.

sales have been recorded): Washington and Montana.¹⁵² In such situations of less-than-active water markets, the focus of the EWM is likely to be on water recovery with water transfers facilitated through the EWM's outreach programs and the ability to understand on-farm arrangements. However, it is worth noting that there has been a consistent push from the state government of Washington to establish water banks to facilitate trade,¹⁵³ and Montana has pioneered a private water leasing program to improve instream flows.¹⁵⁴ Whilst an active water market may be necessary to provide flexibility for the long-term management of a water portfolio, the activity of EWMs and government departments in these states demonstrate the capacity of EWMs themselves to drive the creation and activity of water markets, in order to access the water they need. What is essential for the EWM to be created is the willingness of other water users to participate in water trades; when water markets are relatively inactive, this willingness to trade may be a proxy for the presence of an active water market.

2. *Results of the review steps 2 and 3: Do the EWMs depend on this legal context?*

The global review demonstrates a strong correlation between the presence of three features of the legal context (modern water rights, water markets, and environmental water rights) and the existence of an EWM. All three features are present where EWMs exist today, but EWMs are not found where one of those elements is absent. This review demonstrates the importance of legal context for the creation and operation of the EWMs, as well as providing important insights for the implementation of environmental water law and policy around the world.

Based on the review, 42 jurisdictions (countries or states/provinces within them) recognize a water use right that is transferable and separate from land (modern water rights), but do not have an operating EWM (see Appendix A).

Three of these jurisdictions (Chile, South Africa and the Canary Islands) have modern water rights, water markets and legal protection of environmental flows, but do not yet

¹⁵² Kristiana Hansen, Richard Howitt and Jeffrey Williams, 'An Econometric Test of Water Market Structure in the Western United States' (Paper presented at the Allied Social Science Association Annual Meeting, Chicago, IL, 2012).

¹⁵³ State of Washington Department of Ecology, *Water Market* (25 September 2012) Water Resources <<http://www.ecy.wa.gov/programs/wr/market/market.html>>.

¹⁵⁴ Trout Unlimited Montana, *Private Water Leasing: A Montana Approach* (Trout Unlimited Montana).

have an EWM. The primary reason for this absence appears to be the weakness of the allocation of environmental water rights so far. Chile has focused on a minimum flow provision that remains ad hoc,¹⁵⁵ and South Africa, although it has a strong legal framework, is still grappling with the challenge of implementing environmental flows.¹⁵⁶ The Canary Islands is subject to the EU Water Framework Directive, so it will be interesting to observe whether this begins to encourage more activity in environmental water management in the future.¹⁵⁷

The remaining 39 jurisdictions have some form of legally transferable property right to water (although in some cases this has not been completely separated from land and use specifications), but either do not have an active water market (in some cases it is absent entirely; in others there is very low levels of activity), or they do not provide adequate legal protection for environmental flows, or both. None of these jurisdictions has an EWM,¹⁵⁸ which provides the strongest evidence of correlation between the three factors and the operation of EWMs.

B. *How do legal form and legal context create personhood?*

The EWMs are organisations with the capacity to hold modern water rights for the environment and engage in water markets to acquire or trade water rights to improve the health of the aquatic environment. Each year, EWMs decide to undertake particular activities: to acquire additional water, to re-acquire water (when leases may lapse), to transfer water, or to make use of their existing water holdings, by delivering water to particular locations (as instream flows or by extracting water for use in wetlands). The

¹⁵⁵ E O'Donnell and E MacPherson, 'Challenges and Opportunities for Environmental Water Management in Chile: an Australian Perspective' (2014) 23 *Journal of Water Law* 24.

¹⁵⁶ Sharon Pollard and Derick du Toit, 'The Shared River Initiative Phase I: Towards the Sustainability of Freshwater Systems in South Africa: An Exploration of Factors that Enable or Constrain Meeting the Ecological Reserve within the Context of Integrated Water Resources Management in the Catchments of the Lowveld; WRC Report No. TT 477/10' (Water Research Commission, South Africa, 2011).

¹⁵⁷ Samantha Jane Hughes and Björn Malmqvist, 'Atlantic Island Freshwater Ecosystems: Challenges and Considerations Following the EU Water Framework Directive' (2005) 544 *Hydrobiologia* 289; European Communities, 'Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 Establishing a Framework for Community Action in the Field of Water Policy' (2000) 12.22.2000 (L 327) *Official Journal of the European Communities* 1; Timothy Moss, 'Spatial Fit, from Panacea to Practice: Implementing the EU Water Framework Directive' (2012) 17(3) *Ecology and Society* 51.

¹⁵⁸ Ducks Unlimited Canada holds a water conservation licence in the Yukon Territories, but DU Canada is not an EWM, as the water licence is a historical artefact of past conservation agreements.

EWMs have been shaped by their legal context to operate as decision-makers for environmental water acquisition and management.¹⁵⁹

To do so, however, EWMs require particular legal powers, and their organisational form must include the power to enter contracts with other persons (to support the acquisition and management of their water), and they must be able to sue in court to protect both their water rights, and their contractual rights. In other words, to operate successfully, they must be able to make decisions, and enforce those decisions, which requires the attributes of a legal person.

The law defines a legal person as simply a 'being whom the law regards as capable of rights and duties'.¹⁶⁰ The capacity for EWMs to act in this way does not, therefore, necessarily imply anything more broadly about their status as rights holders beyond their legal context. Using the legalist approach advocated by Naffine, the legal person is 'a relatively autonomous legal fiction and invention',¹⁶¹ where the sole 'defining characteristic of *law's* construct is the formal capacity to bear rights and duties'.¹⁶² Naffine argues that the law 'constructs, rather than finds, its subject',¹⁶³ and the EWMs, in turn, are constructed by various legal sources to enable them to act as legal persons.

Government EWMs are typically established by statute and given the specific rights and duties needed to act as legal persons in this legislation (Table 5).¹⁶⁴

¹⁵⁹ For more detail, see O'Donnell, 'Australia's Environmental Water Holders', above n 103.

¹⁶⁰ John Salmond, *Jurisprudence* (Sweet & Maxwell, Glanville L Williams (ed), 10th ed, 1947), 318.

¹⁶¹ Ngaire Naffine, 'Review Essay: Liberating the Legal Person' (2011) 26(1) *Canadian Journal of Law and Society* 193, 194.

¹⁶² Ngaire Naffine, *Law's Meaning of Life: Philosophy, Religion, Darwin and the Legal Person* (Hart Publishing, 2009), 21.

¹⁶³ *Ibid*, 26.

¹⁶⁴ For more on government EWMs, see Chapters 5 and 6.

Table 5 Government EWMs

Organisation type	Source of legal personhood rights and duties	Source of water holding and management capacities	Accountability: to whom does this organisation report?	Examples
Statutory corporation	Establishing legislation (creation of the corporate form)	Establishing legislation and/or water statutes in its jurisdiction(s) of operations	Relevant Minister(s) and the public through corporate plans and annual reports	• Victorian Environmental Water Holder • Murray-Darling Basin Authority • Idaho Water Resource Board
Statutory entity	Establishing legislation (endowed with specific powers in legislation but not a corporate form)	Establishing legislation and/or other water statutes in its jurisdiction(s) of operations	Relevant Minister(s) and the public through business plans and annual reports	• Commonwealth Environmental Water Holder • Colorado Water Conservation Board
Function within government department (only an EWM when specific and identifiable)	Enabling legislation, policy documents, referral of Ministerial powers	Water statutes and regulations in its jurisdiction(s) of operations	Relevant Minister(s) through annual plans and reports; parliamentary reports	• Riverbank (NSW) • Washington State Department of Ecology

Non-government EWMs are generally a not-for-profit corporation, or a trust established on behalf of a conservation organisation (Table 6). The source of legal personhood will vary, depending on the legislation under which the organisation is incorporated (or the trust relationship formalized).¹⁶⁵ The ability of the NGO EWMs to represent the aquatic environment thus stems from both the statutory reforms that enable the environment to be a holder of water rights, as well as the contractual relationships the NGO EWMs enter to acquire and manage those water rights for the aquatic environment.

¹⁶⁵ For more detail on the NGO EWMs, see Chapters 5 and 6.

Table 6 Non-government EWMs

Organisation type	Source of legal personhood rights and duties	Source of water holding and management capacities	Accountability: to whom does this organisation report?	Examples
Not-for-profit corporation	Corporations law in the relevant jurisdiction (eg, <i>Internal Revenue Code</i> (26 U.S.C. § 501(c)); <i>Corporations Act 2001</i> (Cth)). This can also include incorporated associations.	Water statutes in its jurisdiction(s) of operations, and the objectives of the organisation set out in its constitution	Donors through corporate plans and annual reports and to the public via websites	• Healthy Rivers Australia • Murray-Darling Wetlands Working Group Ltd. • Freshwater Trust (Oregon) • Trout Unlimited Montana • Deschutes River Conservancy
Water trust for environmental purposes	Trust laws in the relevant jurisdictions	Water statutes in its jurisdiction(s) of operations, and the objectives of the trust deed	Donors and to the establishing organisation through annual reports; and to the public via websites	• Environmental water trust of NSW Conservation Council • Water for Nature SA (a trust established by Nature Foundation SA) • Washington Water Trust

The EWMs, as noted at the outset of this chapter, are created as legal persons, and as Tables 5 and 6 demonstrate, use specific legal forms to do so. They have been created with the specific objective of improving the health of the aquatic environment (within their geographically limited jurisdictions). By acting to acquire and manage environmental water to achieve this objective, within their specific legal context of modern water rights, water markets and environmental water rights, they act as choice theory's *rational decision-maker*. Harel argues that 'by exercising choice, one manifests one's individuality and personhood',¹⁶⁶ and as Naffine goes on to say, 'the very idea of a right... connotes a being with the ability personally to enforce it.'¹⁶⁷ As a combination of their creation, and operation, within water law, they construct the environment as a legal person. Chapter 3 discusses legal personality in more depth, but what is crucial is 'the

¹⁶⁶ Alon Harel, 'Theories of Rights' in William A Edmundson and Martin P Golding (eds), *Blackwell Guide to the Philosophy of Law and Legal Theory* (Blackwell, 2005) 191, 194.

¹⁶⁷ Naffine, *Law's Meaning of Life*, above n 162, 55.

legal principle that rights only attach to entities that have legal status.’¹⁶⁸ An entity with legal personality is the subject of the law, and thus the pinnacle of visibility, and *legibility* to the law.

Prior to the advent of legal rights to water for the environment, and the EWMs, the aquatic environment was merely the terrain in which the water resources were located, but was itself largely invisible to the law, as it had no legal rights or duties of its own. Even when various limits were imposed on the extraction of water by others, such as caps or the requirement to release minimum flows in dams, these limits did not create legal rights for the environment itself.¹⁶⁹ Only now, when the aquatic environment has legal rights to water of its own, and has been given legal form through the creation of the EWMs, does water law recognize legal rights for the environment. It is not a complete personification of the aquatic environment, as it only extends to aquatic environment represented by the EWM, and only to the geographic locations in which environmental water rights are available (both legally and physically).¹⁷⁰ However, as Naffine notes, ‘[i]f someone or something is a person, it tends to count in its own right. If the being or entity is not a person, its legal protections are dramatically diminished.’¹⁷¹

Together, the legal context (modern water rights, water markets and legal water rights for the environment) and the construction of EWMs as legal persons (by their creation in law, and by their own actions as decision-makers in environmental water recovery and management) combine to make the aquatic environment directly visible to the law. The creation of the EWMs, within their legal context, has qualitatively transitioned the aquatic environment over a legibility threshold. The aquatic environment is now visible to the law, and through the medium of the EWM, can engage with the law as a legal subject.

Importantly, this is not a complete transformation of the aquatic environment. The EWM is a limited legal vehicle through which legibility can be established, and ‘the artificial yet inventive manner in which law positively constitutes its subject’¹⁷² is highly

¹⁶⁸ Gail Morgan, ‘The Dominion of Nature: Can Law Embody a New Attitude?’ (1993) 60 *Bulletin of the Australian Society of Legal Philosophy* 43, 46.

¹⁶⁹ The constructions of the aquatic environment in water law in south-eastern Australia and the western USA are explored in Chapters 5 and 6.

¹⁷⁰ See Chapter 1, 13, on the difficulty of defining the aquatic environment.

¹⁷¹ Naffine, *Law’s Meaning of Life*, above n 162, 11.

¹⁷² *Ibid*, 9.

context specific. Each EWM defines the aquatic environment in slightly different ways, and the legal context for the EWMs is specific to the jurisdiction. For this reason, the analysis of the EWMs will be conducted using two geographic case studies where most of the EWMs are currently located: south-eastern Australia, and western USA.¹⁷³

V. CONCLUSION

This chapter has answered the sub-question of how the EWMs construct the aquatic environment as a legal person. In doing so, it has established the EWMs as organisations responsible for acquiring and managing environmental water to improve aquatic environmental health using the water market, and charted their creation as a response to the need for an active decision-maker for environmental water recovery and management activities. This chapter also defined EWMs as: *identifiable legal persons with specific objectives to improve the health of aquatic ecosystems over time, using environmental water rights*.

This chapter shows that although personhood is common to all EWMs, they use a variety of legal forms to achieve personhood within their specific legal context. However, this personhood always includes the specific legal powers to:

- Hold, acquire, and use water rights (although some legal contexts specify that only one EWM can hold water rights on behalf of the environment, other EWMs can acquire these rights with the intent to transfer them to the officially recognized EWM);¹⁷⁴ and
- Have legal standing in court (including the ability to sue and be sued),¹⁷⁵ and the power to enter and enforce contracts (most notably for the acquisition and management of water rights).

This chapter also established that the majority of the EWMs are located in two regions: the western USA and south-eastern Australia, and these regions will be used as the two geographic case studies.¹⁷⁶

¹⁷³ Detailed case study methods are in Chapter 4.

¹⁷⁴ See Chapter 6.

¹⁷⁵ The importance of legal standing in court varies. It can be extremely important in states like Colorado, which rely on a water court to facilitate water transfers, see Charney, above n 77; see Chapter 6.

This chapter argues that the EWMs enhance the legibility of the aquatic environment to the law in two distinct ways. Firstly, the EWM is *created* as a legal person (often formalized by using the form of a body corporate, or a trust held by a corporation), so that the EWM is a legal subject with rights and duties of its own. Secondly, the EWMs are created and *operate* within in a specific legal context, at the confluence of modern water rights, water markets and environmental water rights. The EWM entity, combined with the legal reforms of transferable water rights and environmental water rights, can represent at least part of the aquatic environment. The EWMs thus construct the aquatic environment as a legal person, enabling it to engage more fully with the law (via the EWM). This creates both opportunities and challenges, especially in the interaction between the multiple constructions of the aquatic environment in water law, and the cultural narratives underpinning the social value of the environment.

Using the constructivist approach to personhood described in Chapter 1 emphasises the ability of law-makers to construct the legal subject by simply using the relevant cluster of rights and duties to suit the legal context.¹⁷⁷ The EWMs exemplify this method: they have been constructed as legal persons in water law to achieve particular environmental goals. However, such legal constructions do not occur in a vacuum, and the broader legal context of the EWMs is important.

The next chapter embeds the EWMs into their broader context, by undertaking a review of the way that the environment is constructed in law, and the ways these constructions have changed over time to make the environment itself increasingly *legible* to law. Chapter 3 engages specifically with the two geographic case studies that will be used to underpin the analysis in Chapters 5 and 6, but also explores the global trend of legal rights for the nature, as well as the increasingly popular use of market mechanisms to manage the environment. Chapter 3 develops a new conceptual framework to identify the ways in which the environment is constructed in law, and the importance of the cultural narratives that underpin these constructions.

¹⁷⁶ See Chapters 4-7.

¹⁷⁷ Chapter 1, 15.

Chapter 3

Constructing the Environment in Law: a Quest for Legibility

I. INTRODUCTION

How we think about environmental management challenges is important... because our characterization of these challenges dictates both how we perceive them and then, correspondingly, how we integrate these perceptions into our legal and institutional frameworks.¹

‘Modern environmental law’² emphasises the power of legal remedies for environmental problems.³ However, to bring the power of the law to bear on environmental problems requires that the environment itself must be visible, and comprehensible, to the law.⁴ This chapter answers the sub-question: how is the environment constructed in modern environmental law? In doing so, it demonstrates that the multiplicity of environmental constructs in law is a response to the need for the visibility, or *legibility*, of the environment to the law. This chapter helps to answer the question of what happens when the aquatic environment is constructed as a legal subject, by placing the EWMs in the broader context of environmental law.

This chapter undertakes a broad historical review of modern environmental law, with particular emphasis on examples from the two jurisdictions that will be used in the case studies,⁵ as well as broader global trends. As a first step, the main constructions of the environment are identified and explored as they have emerged over time, drawing on

¹ Melinda Harm Benson, 'Reconceptualizing Environmental Challenge - Is Resilience the New Narrative?' (2015) 21 *Journal of Environmental and Sustainability Law* 99, 99.

² Neil Gunningham, 'Environmental Law, Regulation and Governance: Shifting Architectures' (2009) 21(2) *Journal of Environmental Law* 179, 182, briefly, 'modern environmental law' refers to the body of laws passed to protect the environment, mostly since 1970; see also Zygmunt J B Plater, 'From the Beginning, a Fundamental Shift of Paradigms: a Theory and Short History of Environmental Law' (1994) 27 *Loyola of Los Angeles Law Review* 981.

³ Mark Stallworthy, *Understanding Environmental Law* (Sweet & Maxwell, 2008); D E Fisher, *Australian Environmental Law: Norms, Principles and Rules* (Thomson Reuters, 2nd ed, 2010).

⁴ David Grinlinton, 'The "Environmental Era" and the Emergence of "Environmental Law" in Australia - A Survey of Environmental Legislation and Litigation 1967-1987' (1990) 7 *Environmental and Planning Law Journal* 74; Plater, above n 2; Richard J Lazarus, 'Restoring What's Environmental About Environmental Law in the Supreme Court' (2000) 47 *UCLA Law Review* 703.

⁵ Australia and the USA, see Chapters 2, 4-7.

specific examples. Secondly, this chapter articulates the key processes that enabled each new construction of the environment in the law to emerge. These processes enhance the capacity of the law to really 'see' the environment by increasing the number of ways the law can affect the environment, and producing increasingly direct methods of interaction. Thirdly, this chapter argues that the construction of the environment as a legal subject (such as the EWMs) has occurred at the nexus of two distinct drivers of legal reform: the legal rights for nature movement,⁶ and market environmentalism.⁷ These broad trends are reflected in the specific reforms used to create the necessary legal context for the EWMs: modern water rights (including transferable rights held separately to land), the use of markets as a form of regulating the environment, and creative implementation of legal personality using the corporate form.⁸

Finally, this chapter uses the historical review to develop a conceptual framework that links the different constructs, their processes of transition and the cultural narratives that underpin them.⁹ This conceptual framework is a unique contribution of this thesis, and shows that there has been a chronological trend: narrower, more legible constructs of the environment have emerged from broader, less legible constructs over time. However, although a pattern of chronology is apparent, the multiple constructions co-exist, and can interact with one another. Further, by relating the constructions of the environment and their cultural narratives to the regulatory response,¹⁰ this conceptual framework can be applied to help understand the EWMs within the context of water and environmental law in later chapters.

⁶ Peter Burdon, 'The Rights of Nature: Reconsidered' (2010) 49 *Australian Humanities Review* 69.

⁷ Terry L Anderson and Gary D Libecap, *Environmental Markets: A Property Rights Approach* (Cambridge University Press, 2014); Terry L Anderson and Donald R Leal, *Free Market Environmentalism* (Palgrave, 2001).

⁸ Chapter 2, 52-57.

⁹ The framework draws explicitly on the work of Melinda Benson Harm, Michael Burger and Robin Kundis Craig, who have emphasised the power of narrative for environmental law, see Michael Burger, 'Environmental Law/Environmental Literature' (2013) 40 *Ecology Law Quarterly* 1; Harm Benson, above n 1; Robin Kundis Craig, 'Learning to Live with the Trickster: Narrating Climate Change and the Value of Resilience Thinking' (2016) 33(Spring) *Pace Environmental Law Review* 351.

¹⁰ The framework builds on the work of Bronwen Morgan and Karen Yeung in connecting the narratives to particular theories of regulation, see Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (Cambridge University Press, 1st ed, 2007), 16-78.

II. 'MODERN' ENVIRONMENTAL LAW: THE CONSTRUCTION OF THE ENVIRONMENT

"The development of environmental law has been dramatic – a massive upwelling of layer upon layer of substantial public and private law doctrines, almost volcanic in power and mass of its eruption..."¹¹

The law originally viewed impacts to the environment through the lens of the effect of one person's actions on another, via the torts of trespass, negligence and nuisance.¹²

However, these laws were piecemeal, ad hoc and underpinned by the rights of individuals rather than a collective desire to protect and conserve the environment.¹³

Even resource management laws, which attempted to manage the use of natural resources for the overall economic and social benefit of the human community,¹⁴ were often inadequate at protecting the environment qua the environment.¹⁵

It wasn't until the 1960s that the environment was recognized as a legal concept, in response to a new understanding of the impact of human activity on the natural environment,¹⁶ and a sense of urgency that this impact must be reduced for the sake of human wellbeing, as well as that of other species.¹⁷ Modern environmental laws¹⁸ established the environment as something legible to, and manageable by, the law.

Defining the natural environment in law is central to the task of protecting, conserving and managing it. In 1998, Godden argued that 'the essential contingency of any formulation of 'nature' means that 'we need to be clear about what is being regulated',¹⁹ an issue that remains a core challenge for environmental law almost 20 years later. In a society governed by the rule of law, if environmental claims and interests cannot be

¹¹ Plater, above n 2, 1003.

¹² Lee Godden and Jacqueline Peel, *Environmental Law: Scientific, Policy and Regulatory Dimensions* (Oxford University Press, 2010), 155; Gerry Bates, *Environmental Law in Australia* (LexisNexis Butterworths, 2013); see also Justice Brian Preston, 'Environmental Law 1927-2007: Retrospect and Prospect' (2007) 81 *Australian Law Journal* 616.

¹³ Plater, above n 2, 994.

¹⁴ Fisher, above n 3, vii.

¹⁵ Anthony Scott, *The Evolution of Resource Property Rights* (Oxford University Press, 2008); Carol M Rose, 'Energy and efficiency in the realignment of common law water rights' (1990) 19 *Journal of Legal Studies* 261

¹⁶ Fisher, above n 3, vii.

¹⁷ Rachel Carson, *Silent Spring* (Penguin Books, 1965); H Patricia Hynes, *The Recurring Silent Spring* (Pergamon Press, 1989).

¹⁸ Most modern environmental law was passed as legislation, see Gunningham, above n 2. Many of these statutes had roots in earlier legislation, such as the USA *Clean Water Act* 33 U.S.C. §1251 et seq. (1972), which can be traced back to the 1948 federal *Water Pollution Control Act*.

¹⁹ Lee Godden, 'Preserving Natural Heritage: Nature as Other' (1998) 22(3) *Melbourne University Law Review* 719, 722.

expressed in legally meaningful ways, then they are highly vulnerable to marginalization.²⁰

Statutory environmental law has approached this challenge by creating multiple, purpose-specific definitions of the environment to meet the needs of the particular problem at hand. Although scholars such as Klaus Bosselman and Douglas Fisher have identified an emergent norm of ecologically sustainable development,²¹ which Fisher traces back to the release of the Brundtland report in 1987²² and the Rio Summit in 1992,²³ environmental law remains dependent on a varied collection of definitions of ‘environment’, depending on the jurisdiction and the specific purpose of the legislation.

By taking a constructionist approach,²⁴ it is possible to go beyond the specific definitions and focus on the rights and power of the environment in law. The following sections identify and describe three constructions of the environment in law:

- the socio-ecological concept, the ‘natural environment’;
- a legal object, to be protected from the actions of others; and
- a legal subject, a legal person with rights of its own.

A. *A Socio-Ecological Concept Articulated by the Law*

Environmental law is concerned, in the first instance, with impacts on the natural environment.²⁵

Modern environmental law emphasised a particular set of legal problems as inherently ‘environmental’.²⁶ One of the first challenges faced by environmental law, however, was how to define the ‘environment’, and thus identify which elements were of interest in a specific context. In response, modern environmental law statutes created many new definitions of the ‘environment’. These definitions occur along a spectrum of ‘naturalness’, exemplifying what Dickens identified as the Western dichotomy ‘between

²⁰ Stallworthy, above n 3, 29.

²¹ Fisher, above n 3, vii, and chapter 6; Klaus Bosselmann, *The Principle of Sustainability: Transforming Law and Governance* (Ashgate Publishing Ltd, 2008).

²² World Commission on Environment and Development, *Our Common Future (the Brundtland Report)* (Oxford University Press, 1987).

²³ *Rio Declaration on Environment and Development*, GA A/CONF.151/26 (Vol. 1), Report of the United Nations Conference on Environment and Development (Rio de Janeiro, 3-14 June 1992).

²⁴ For a discussion of this method, see Chapter 1, 15.

²⁵ Lazarus, above n 4, 744.

²⁶ *Ibid.*

‘people’... and ‘nature’.²⁷ At one end is the human-centric definition, where the environment is merely the physical surroundings of humans. For example, the New South Wales *Environment Planning and Assessment Act 1979* defines ‘environment’ as including ‘all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings’.²⁸ At the other end, the environment is defined as ‘wildness’; the pristine places where human impact is minimal. Queensland’s recently-repealed *Wild Rivers Act 2005* aimed to ‘preserve the natural values of rivers that have all, or almost all, of their natural values intact’.²⁹ In this case, ‘natural’ was considered to exclude the impacts and broader cultural values of the indigenous Australian populations in the wild river catchments.³⁰

More recent definitions of the environment include humans as part of the ecosystem, such as Australia’s *Environment Protection and Biodiversity Conservation Act 1999* (Cth), which defines the environment as ‘ecosystems and their constituent parts, including people and communities’.³¹ This trend is part of modern environmental law’s acknowledgement that moving to the ‘holistic, human-species-as-constituent-part-of-nature view is not just an ethical idea, it is fundamentally practical and utilitarian as well’³², by showing that ‘failing to live within the limits that nature imposes not only imperils other species or ‘nature’, it imperils the continued viability of human existence’.³³ Growing awareness of climate change and the ‘Anthropocene’ (a new geological epoch that reflects the growing perturbation of the Earth’s surface systems by the activities of humans)³⁴ suggests that this trend is likely to continue.

²⁷ Peter Dickens, *Society and Nature: Towards a Green Social Theory* (Harvester Wheatsheaf, 1992), 15.

²⁸ *Environment Planning and Assessment Act 1979* (NSW) s 4(1), ‘environment’.

²⁹ *Wild Rivers Act 2005* (Qld) s 5(1); this act is now repealed.

³⁰ This was a deeply controversial move, see Timothy Neal, ‘Overturn, Axe and Bury: the LNP and Queensland’s Wild Rivers Act’ *The Conversation* (online) 2 August 2012, <<https://theconversation.com/overturn-axe-and-bury-the-lnp-and-queenslands-wild-rivers-act-8576>>.

³¹ *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s528, see definition of environment part (a).

³² Plater, above n 2, 1000.

³³ David Delaney, *Law and Nature* (Cambridge University Press, 2003), 199.

³⁴ Will Steffen, Paul J Crutzen and John R McNeill, ‘The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?’ (2007) 36 *Ambio* 614; Paul J Crutzen and Eugene Stoermer, ‘The “Anthropocene”’ (2000) 41 *Global Change Newsletter* 17.

The *socio-ecological concept* of the environment emerges from the recognition and definition of the environment within modern environmental legislation. These definitions bring together the recognition of an ecological reality and the relationship of a particular society to the environment, in what Evernden describes as the ‘social creation’ of nature.³⁵

In addition to specific definitions of the environment, the socio-ecological concept of the environment also emerges from the combination of the objectives and purpose of the legislation. Douglas Fisher described these as strategic rules of limitation,³⁶ which indicate ‘the direction of decision-making’ desired by the legislature.³⁷ For example, in the USA, the *National Environmental Policy Act* (NEPA)³⁸ doesn’t contain a definition for ‘environment’, but it’s possible to identify common elements of the way the legislation considers the natural environment based on the references in the text. Firstly, the preamble refers to the ‘environment and the biosphere... the ecological systems and natural resources’ in the context of their importance to the health and welfare of people, and the nation. Secondly, § 4331 part (a) refers to the ‘natural environment’ and the ways that ‘man and nature can exist in productive harmony’.³⁹ Part (b) is even more specific, referring to: ‘safe, healthful, productive, and esthetically and culturally pleasing surroundings’ for all Americans and the need to ‘preserve important historic, cultural, and natural aspects of our national heritage’.⁴⁰ So, although a clear definition of ‘environment’ is lacking in NEPA, a picture of the legal vision of the natural environment emerges nonetheless: the natural environment includes ecosystems as well as cultural heritage, and is necessary to support the health and welfare of the people and the nation.

These strategic rules are the basis for identifying the environment as worthy of legal protection, and reflect the tensions between the different philosophies underpinning environmental law. Firstly, they can identify a single clear purpose of environmental

³⁵ Neil Evernden, *The Social Creation of Nature* (Johns Hopkins University Press, 1992); see also, Kate Soper, *What is Nature? Culture, Politics and the Non-Human* (John Wiley and Sons Ltd, 1995).

³⁶ Fisher, above n 3, chapter 10.

³⁷ Ibid, 254.

³⁸ *National Environmental Policy Act* of 1969 42 U.S.C. § 4321 et seq.

³⁹ *National Environmental Policy Act* of 1969 42 U.S. Code § 4331, Congressional declaration of national environmental policy, part (a).

⁴⁰ *National Environmental Policy Act* of 1969, 42 U.S. Code § 4331, Congressional declaration of national environmental policy, part (b).

protection or conservation, placing the environment at the centre of the legislation.⁴¹ The US *Endangered Species Act 1973*⁴² is one of the most powerful examples of this form of legislation, with the capacity to intervene in a broad range of public and private activities to conserve species and their habitat, but is limited only to those species listed as endangered.⁴³ Secondly, and more typically, these strategic rules can include multiple objectives that require balancing against each other,⁴⁴ often for the purpose of enabling ecologically sustainable development.⁴⁵ Although the primacy of the requirement to pursue ecologically sustainable development does provide environmental protection, the act of balancing environmental impacts and outcomes against economic and social impacts and outcomes frames the environment as merely one of many elements for consideration.⁴⁶

The socio-ecological concept is articulated and defined as needed for the purposes of specific legislation. The capacity to tailor the precise shape of the natural environment in law is useful, but it also means that there are potentially inconsistent versions of the natural environment throughout environmental law. The following sections explore the way in which the natural environment is shaped in two competing ways: broad versus narrow, and dynamic versus stable.

1. *Broad or Narrow?*

Broader definitions of the environment can be very powerful, enabling courts to consider a wider range of potential environmental impacts. For example, the definition of environment in the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is extremely broad. The environment is defined as:

- (a) ecosystems and their constituent parts, including people and communities; and
- (b) natural and physical resources; and
- (c) the qualities and characteristics of locations, places and areas; and

⁴¹ For example, *Wild Rivers Act 2005* (Qld) s 3(1).

⁴² 16 U.S.C. § 1531 et seq.

⁴³ 16 U.S. Code § 1538.

⁴⁴ See *Parramatta City Council v Hale* (1982) 47 LGERA 319, where the duty to 'consider' was determined to mean balancing all the relevant factors.

⁴⁵ For example, *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 3(1).

⁴⁶ This is often the case when setting environmental flows, see Jackie King and Cate Brown, 'Environmental Flows: Striking the Balance between Development and Resource Protection' (2006) 11(2) *Ecology and Society* <<http://www.ecologyandsociety.org/vol11/iss2/art26/>>.

(d) heritage values of places; and

(e) the social, economic and cultural aspects of a thing mentioned in paragraph (a), (b), (c) or (d).⁴⁷

Recognition of the wider environment in which humans and the ecology are interdependent creates broad legal capacity to regulate environmental impacts. For example, the EPBC Act definition of the extent of the environment was critical to halting a development in the *Nathan Dam* case.⁴⁸ The Federal Court of Australia used the connectivity of the natural environment (via the Dawson River, which connected to the ocean and thence to the Great Barrier Reef) to identify a broad range of impacts from a proposed dam, including those that were derivative (based on uses of the water stored by the dam) and well downstream of the dam itself.

However, broad definitions also create the potential for inconsistencies to emerge, especially where one part of the environment is negatively impacting another,⁴⁹ or where different parts of the environment are being used for different purposes.⁵⁰ This can have significant legal effects: for example, the Victorian Environmental Water Holder (VEWH), an EWM, may choose to sell some water rights and use the funds generated to invest in either additional water in other locations, or in complementary works that also enhance the ecological functioning of the aquatic ecosystem.⁵¹ Determining whether the sale is legally permitted requires a clear definition of the parts of the aquatic environment for which the VEWH is responsible, which is at the discretion of the VEWH.

⁴⁷ *Environment Protection and Biodiversity Conservation Act 1999* (Cth), s528, 'environment'.

⁴⁸ *Minister for The Environment and Heritage v Queensland Conservation Council Inc* [2004] FCAFC 190.

⁴⁹ For a recent Australian example, the attempt to exclude cattle grazing from national parks pitted ecological values against cultural heritage values, Michael McCarthy, Georgia Garrard and Libby Rumpff, 'The Alpine Grazing Debate was Never About Science', *The Conversation* (online) 16 April 2015, <<https://theconversation.com/the-alpine-grazing-debate-was-never-about-science-40219>>.

⁵⁰ For example, many rivers are used to deliver water to irrigators from upstream dams, which increases flows during summer and reduces flows during winter, causing seasonal flow inversion, which degrades aquatic ecosystems, see, eg, R T Kingsford, 'Ecological Impacts of Dams, Water Diversions and River Management on Floodplains in Australia' (2000) 25 *Austral Ecology* 109; K F Walker, 'Serial Weirs, Cumulative Effects: the Lower River Murray, Australia' in Richard Kingsford (ed), *The Ecology of Desert Rivers* (Cambridge University Press, 2006) 248; Terry Hillman, 'Ecological Requirements: Creating a Working River in the Murray-Darling Basin' in Lin Crase (ed), *Water Policy in Australia: The Impact of Change and Uncertainty* (Resources For the Future, 2008) 124.

⁵¹ See Table 8 and Chapter 5, 125; see also E. O'Donnell, 'Institutional reform in environmental water management: the new Victorian Environmental Water Holder' (2012) 22 *Journal of Water Law* 73.

2. *Dynamic or Stable?*

Common law depends on a certain level of stability to underpin the continued relevance of past precedents and to support consistent interpretation of statutory language.

However, the natural environment is always changing. Ecologically, very few environments are consistent over long periods of time, as habitats change through abrupt processes such as fire and volcanic eruptions, as well as more gradual processes like desertification, glaciations and continental movements, and, eventually, species evolve.⁵² Human activities can hasten these changes through introduced species, land clearing, mining and climate change.

When the environment is always changing, how can the law create accountability for environmental protection? Without a clear baseline, and a clear causal nexus for the change, accountability and liability for environmental outcomes is difficult to establish. Environmental water management is a powerful example of this problem, as water availability and ecosystem health is influenced by long-term climate and weather patterns, as well as the actions of EWMs. The Victorian government grappled with this problem in 2008 as part of the Northern Region Sustainable Water Strategy (NRSWS). The NRSWS acknowledged that under climate change predictions, some aquatic ecosystems in northern Victoria may unavoidably change, and that there may no longer be sufficient water in the system to maintain them in their historical form.⁵³ On the other hand, the policy also acknowledged that this could not be an excuse to fail to provide sufficient environmental water to sustain these ecosystems through short-term drought.⁵⁴

This ecological dynamism is further compounded by shifting social values. The environment is maintained and protected at the standard required by society, and the

⁵² Michael Begon, John L Harper and Colin R Townsend, *Ecology: Individuals, Populations and Communities* (Blackwell Science, 3rd ed, 1996); Michael L Rosenzweig, *Species Diversity in Space and Time* (Cambridge University Press, 1995).

⁵³ This is treated as a different legal question to whether the relevant decision-maker should bear responsibility for the lack of mitigation of climate change, where there has been increasing legal pressure, see eg, the Hague ruling in 2015 that the Netherlands 'must take more action to reduce greenhouse gas emissions in the Netherlands', at ECLI:NL:RBDHA:2015:7196, C/09/456689 / HA ZA 13-1396 (English translation), 24 June 2015, <<http://deeplink.rechtspraak.nl/uitspraak?id=ECLI:NL:RBDHA:2015:7196>>.

⁵⁴ State of Victoria, *Northern Region Sustainable Water Strategy* (Department of Sustainability and Environment, 2009), 150.

funds a particular community is willing to invest in that environment.⁵⁵ Both Australia and the USA have experienced significant shifts in social values for environment as each nation has transitioned from a colonial approach to recognition of its own unique environmental values.⁵⁶ As the social demand for a healthy environment increased, each country has invested significantly in restoring environmental functions degraded by human exploitation.⁵⁷ In Australia, for example, rivers were initially valued for reasons of water supply, and transport of goods. As a result, many rivers were desnagged: trees and other debris that had fallen into the river during floods were removed. More recently, as rivers have become valued for fish habitat, the value of these instream habitats was recognized and in some cases rivers have been actively re-snagged.⁵⁸ In both countries, the restoration of environmental flows to aquatic environments⁵⁹ has underpinned the emergence of the EWMs.⁶⁰

The dynamism of the environment (socially and ecologically), in combination with the shifting boundary between what is included and excluded, means that it will never be possible to take a 'set and forget' approach to environmental protection and management. Robin Kundis Craig engages with this problem in response to climate change law, and she argues that by establishing a narrative that includes unpredictable change, western societies can develop laws that better reflect the changing nature of the

⁵⁵ A Horne, J Freebairn and E O'Donnell, 'Establishment of Environmental Water in the Murray-Darling Basin - an Analysis of Two Key Policy Initiatives' (2011) 15(1) *Australian Journal of Water Resources* 7, 11-13.

⁵⁶ An example from the US is the multiple shifts in the social value of grey wolves. Initially destroyed as a perceived threat to stock, grey wolves then received protection under the *Endangered Species Act 1973* as a threatened species. Following a successful restoration program, the wolves are increasingly perceived as threats to farms once again, and attempts are being made to delist the species; see Defenders of Wildlife, *The Wyoming Wolf Decision Explained* (2014) <<https://www.defenders.org/sites/default/files/publications/the-wyoming-wolf-decision-explained.pdf>>; and *Defenders of Wildlife, et al., Plaintiffs, v. Sally Jewell, et al., Defendants. The Humane Society of the United States, et al., Plaintiffs, v. U.S. Fish and Wildlife Service, et al., Defendants*, F.Supp.3d, 2014 WL 4714847 (D.D.C. 2014).

⁵⁷ George H Pardue and Thomas K Olvera, *Ecological Restoration* (Nova, 2009); Andre F Clewell and James Aronson, *Ecological Restoration: Principles, Values and Structure for an Emerging Profession* (Island Press, 2nd ed, 2013).

⁵⁸ I. Rutherford et al, *Managing woody debris in rivers. Fact Sheet 7* (Land and Water Australia, 2002).

⁵⁹ See Chapter 2, 32.

⁶⁰ Dustin Garrick et al, 'Environmental Water Governance in Federal Rivers: Opportunities and Limits for Subsidiarity in Australia's Murray-Darling River' (2012) 14 *Water Policy* 915; Dustin Garrick, Chelsea Lane-Miller and Amy L McCoy, 'Institutional Innovations to Govern Environmental Water in the Western United States: Lessons for Australia's Murray-Darling Basin' (2011) 30(2) *Economic Papers* 167.

environment.⁶¹ This connection between regulatory response and cultural narrative is explored in more detail in part III below.

In sum, the environment was first *recognized* in the law as a socio-ecological concept, which brings a combination of flexibility and vulnerability. The power of this socio-ecological concept of the 'natural environment' in the law is that it is easily adaptable to the concerns of specific legislation. The corollary of this flexibility is that what is meant by 'natural environment' must be constantly and explicitly articulated by the law. Whilst this recognition enabled the law to 'see' the environment, it required an additional step to translate it into a construct with more legal effect.

B. *Translation of the Environment into a Legal Object*

The translation of the environment into law was focused on protecting the environment from harm caused by the actions of others, and finding ways to limit previously lawful actions in recognition of their cumulative effects. Modern environmental law translated the socio-ecological concept of the environment into law as a legal object: a *thing* to be protected from the potential harm posed by the actions of legal subjects, by the placement of legal limits on those actions. Although attempts to construct the environment as a legal subject were made,⁶² they were almost completely overlooked by the law.⁶³

1. *Translation and Incomplete Legibility*

The vast majority of environmental law operates through translation of the environment into a legal object.⁶⁴ This step significantly enhanced the legibility of the environment to the law, by giving the law the power to directly limit or control specific actions that could cause harm to the environment, but the law could still only 'see' the environment obliquely, through the lens of the legal subjects.

⁶¹ Craig, above n 9.

⁶² Christopher D Stone, 'Should Trees Have Standing? Towards Legal Rights for Natural Objects' (1972) 45 *Southern California Law Review* 450.

⁶³ Christopher D Stone, *Should Trees Have Standing? Law, Morality and the Environment* (Oxford University Press, 3rd ed, 2010); Ngaire Naffine, 'Legal Personality and the Natural World: on the Persistence of the Human Measure of Value' (2012) 3(Special Issue) *Journal of Human Rights and the Environment* 68.

⁶⁴ Gunningham, above n 2, see discussion of the role of the state in promulgating legislation. See also Fisher, above n 3, Stallworthy, above n 3, Tim Jewell and Colin Reid, 'Environmental Law' in David Hayton (ed), *Law's Future(s): British Legal Developments in the 21st century* (Hart Publishing, 2000) 209; Bates, above n 12; Godden and Peel, above n 19.

As a legal object, the environment can be used as a resource, or protected as an asset, under legal rules that empower others to act, or limit their otherwise lawful actions. The following analysis draws on the work of Douglas Fisher, who described these rules as 'rules of competence' and 'rules of limitation'.⁶⁵ 'Rules of competence confer powers of management'⁶⁶ by establishing the legal right to do something, such as the power of an owner to use their possession, the power of an individual to access the environment, the power to discharge pollution to the environment, or the power of the state to approve or disapprove such actions.⁶⁷ These rules of competence confer that power on another legal person, not the environment itself.

Rules of limitation operate in conjunction with rules of competence to control 'the way in which these powers are exercised'.⁶⁸ Fisher distinguishes between strategic rules of limitation, and other limiting rules, such as regulatory, liability and market rules.⁶⁹ Regulatory rules of limitation are located within the body of the legislation, and can create positive or negative duties.⁷⁰ Again, these rules are imposed on other legal subjects, reinforcing the construction of the environment as a legal object, and making the environment dependent on the state to enforce these limits to protect it. Under these rules, the environment is the thing that must not be harmed, the medium that must not be polluted, or the native vegetation (or example) that must not be cleared, but it possesses no legal rights of its own.⁷¹

Importantly, the real power of these rules is not so much in their limitation of an activity, as the process they prescribe for approving the activity. This process can be more or less effective at protecting the environment, depending on the constraints imposed on the decision-maker.⁷²

⁶⁵ Fisher, above n 3, chapters 9-11, 211-276.

⁶⁶ Ibid, 229.

⁶⁷ Ibid, 226-227.

⁶⁸ Ibid, 255.

⁶⁹ Ibid, chapters 10-11.

⁷⁰ Ibid, 265-264.

⁷¹ Ibid, 256.

⁷² Grinlinton, above n 4; Preston, above n 12; Richard B Stewart, 'Models for Environmental Regulation: Central Planning versus Market-based Approaches' (1992) 19(3) *Boston College Environmental Affairs Law Review* 547; Jeb Boyt, 'Struggling to Protect Ecosystems and Biodiversity under NEPA and NFMA: The Ancient Forests of the Pacific Northwest and the Northern Spotted Owl' (1993) 10(2) *Pace Environmental Law Review* 1009.

2. Remaining Blind Spots

The translation of the environment into a legal object by the creation of legal rules that control the activities of others (the legal subjects) enhanced the capacity of the law to protect the environment. However, this translation resulted in a form of incomplete legibility, with a number of remaining blind spots.

Firstly, the law is especially good at seeing the special and iconic.⁷³ The law can easily identify and protect places of iconic wilderness value, such as Australia's Franklin River.⁷⁴ The law is similarly able to focus on species that have been identified as endangered, such as those listed under the USA's *Endangered Species Act*.⁷⁵ However, protecting the environment requires the law to see and value the entire environment, not merely those few places or species considered as especially valuable. As Doremus argues, 'we must find ways to focus the law and the public on ordinary nature rather than merely the obviously special or unique aspects of nature'.⁷⁶

Secondly, the law is focused on actions that achieve a measurable shift in environmental quality. Where the law limits actions that reduce air quality or increase noise levels, these are both measured against the existing background (thus limiting the capacity of the law to *improve* the quality of the environment) and focus on single actions or events that cause a *measurable* change in the existing quality. For example, Victoria's *Environment Protection Act 1970* states that '[a] person shall not pollute any waters so that the condition of the waters is so *changed* as to make or be reasonably expected to make those waters... *noxious or poisonous*' (emphasis added).⁷⁷ Although broader policy and planning regulations can impose unified strategies, the law itself still finds it difficult to consider the effect of cumulative impacts on the environment.

Thirdly, the law can struggle to identify the effects of continuing actions, even where there is a legal capacity to consider the impact of a wide range of activities. For example, the Australian EPBC Act is limited to consideration of new actions, which means that it

⁷³ Holly Doremus, 'Biodiversity and the Challenge of Saving the Ordinary' (2002) 38 *Idaho Law Review* 325.

⁷⁴ See *Commonwealth of Australia v Tasmania* (1983) 158 CLR 1; Peter Christoff, 'Franklin Dam' in Brian Galligan and Winsome Roberts (eds), *Oxford Companion to Australian Politics* (Oxford University Press, 2008).

⁷⁵ Oliver A Houck, 'Reflections on the Endangered Species Act' (1995) 25 *Environmental Law* 689.

⁷⁶ Doremus, above n 73, 327.

⁷⁷ *Environment Protection Act 1970* (Vic) s 39(1)(a).

has no capacity to be used to assess the impact of ongoing storage and extraction of water under existing water rights.⁷⁸ Indeed, this legislation only recently acquired the ability to consider impacts to water resources at all, and can only do so when the activity affecting the water resources relates to coal seam gas or large coal mines.⁷⁹ This is in contrast to the USA, where the federal government must re-license existing dams, and this approvals process provides an opportunity to re-assess the environmental impacts and alter the operation of the dam to reduce them.⁸⁰ Furthermore, the *Endangered Species Act 1973* can be applied to ongoing operations, and new information on the requirements of listed species can provide a way to alter existing water uses.⁸¹

These blind spots are made more problematic by the practicalities of the way in which the law operates. At law, most environmental cases are run by those granted legal standing to seek review of a *decision* to allow an action that has the capacity to affect the environment, so the legal redress is rarely the prohibition of the action, but the requirement for the decision-maker to reconsider the decision.⁸² As Gaudron J stated, the courts can only provide the 'remedies [that] are available and appropriate to ensure that those possessed of executive and administrative powers exercise them... in accordance with the laws which govern their exercise.'⁸³ In the USA, where the public trust doctrine supports a broader legal approach to the problem of how the state is managing environmental assets, under this doctrine, the courts are still limited to an assessment of the human impacts of the environmental degradation.⁸⁴ In Australia, although the EPBC Act enables the court or the Minister to require remediation of the damage to the environment,⁸⁵ there are a number of practical limitations on this power, including the capacity of the court to consider the costs of remediation when making the decision to impose the order.

⁷⁸ Michael Bennett and Alex Gardner, 'How do Environmental Conservation Laws Interact With Environmental Aspects of Water Laws?' (2014) 31(3) *Environmental and Planning Law Journal* 3.

⁷⁹ *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) s 24D.

⁸⁰ M Bowman, 'Legal Perspectives on Dam Removal' (2002) 52(8) *BioScience* 739.

⁸¹ Holly Doremus and A Dan Tarlock, 'Fish, Farms and the Clash of Cultures in the Klamath Basin' (2003) 30 *Ecology Law Quarterly* 279.

⁸² This is particularly relevant under Australia's EPBC Act, which has broad standing requirements, but limits this extended standing to injunction (s 475) or judicial review (s 487).

⁸³ *Corporation of the City of Enfield v Development Assessment Commission* (2000) 199 CLR 135; 106 LGERA 419 at 437, per Gaudron J.

⁸⁴ See *National Audubon Society v. Superior Court of Alpine County*, 33 Cal.3d 419 (1983); *Lujan v Defenders of Wildlife* 112 S.Ct. 2130 (1992).

⁸⁵ *Environment Protection and Biodiversity Conservation Act 1999* (Cth) ss 480A-480N.

C. Personification of the Environment as a Legal Subject

Through its concept of the person, law helps to define who matters... the legal person, in whatever manifestation, corporate or human... represents an act of legal creativity with immense social and political import.⁸⁶

The third legal construct of the environment is that of a legal person, which 'is to be the subject of rights and duties. To confer legal rights or to impose legal duties, therefore, is to confer legal personality.'⁸⁷ A legal person represents the ultimate step in terms of legibility to the law: it is the centre of legal focus, the subject of the law.⁸⁸

The idea of constructing the environment as a legal subject is not new. In 1972, Stone argued that legal rights should be extended to 'forests, oceans, rivers and other so-called "natural objects" in the environment – indeed, to the natural environment as a whole',⁸⁹ in the same way that legal rights have been extended to other previously 'unthinkable' persons⁹⁰ and those who cannot speak for themselves in the adult world (such as children, or the mentally ill). Stone's argument directly addressed the question of legibility: extending legal rights to the environment would enable the law to see it more clearly, and to respond more appropriately to environmental problems. Stone identified three legal-operational criteria that 'go toward making a thing *count* jurally': (1) 'that the thing can institute legal actions *at its behest*'; (2) 'that in determining the granting of legal relief, the court must take *injury to it* into account'; and (3) 'that relief must run to the *benefit* of it'.⁹¹

Over the past four decades, Stone has presented a number of models for personifying the environment in law, centered on the concept of guardianship and legal standing.⁹² However, there has been very little uptake of these concepts in environmental law more broadly. Although some cases have included nature (in the form of a particular species, geographical feature or location) as a plaintiff, it has generally been as a co-plaintiff,

⁸⁶ Ngaire Naffine, *Law's Meaning of Life: Philosophy, Religion, Darwin and the Legal Person* (Hart Publishing, 2009), 11-12.

⁸⁷ Bryant Smith, 'Legal Personality' (1928) 37(3) *Yale Law Journal* 283, 283.

⁸⁸ Naffine, *Law's Meaning of Life*, above n 86.

⁸⁹ Stone, above n 62, 456.

⁹⁰ Ibid. Stone's examples of slavery and universal suffrage demonstrate that the once-unthinkable can become the now-acceptable.

⁹¹ Stone, above n 62, 458 (italics in original).

⁹² Stone, above n 63.

backed up by a human counterpart, and as Stone acknowledges, such cases must be 'regarded, at the moment, as curiosities',⁹³ rather than evidence of a profound legal shift.

Despite this lack of engagement by the mainstream environmental law, the push for environmental legal rights remains a live issue for environmental law. Recent constitutional amendments in Ecuador,⁹⁴ and new legislation in Bolivia⁹⁵ have created legal rights for nature, and there is some evidence that these laws are being used by the courts to limit environmentally degrading activities.⁹⁶ At the local level, there are also grassroots movements in the USA to embed environmental rights within local constitutions, and there are cases where nature is exerting its own right to exist and flourish in the courts⁹⁷ (although it remains to be seen how these local laws will withstand legal challenges at the state or federal level).⁹⁸ It is also worth noting that the very idea of framing the environment as a holder of legal rights remains contested.⁹⁹

What is missing from the scholarship on legal rights for nature is a consideration of *how* the environment can be given both the capacity for legal rights and duties, but also the competence to enforce those rights.¹⁰⁰ One of the ways this can be achieved is via the corporate form.

1. *Personification and Corporatisation*

Naffine defines the process of personification within the law as a technical construction by the law to make something more visible to the law: '[b]y granting legal rights and

⁹³ Ibid, 114.

⁹⁴ *Constitution of the Republic of Ecuador 2008*, article 71-74.

⁹⁵ *Ley de Derechos de la Madre Tierra*, Law 071 of the Plurinational State of Bolivia.

⁹⁶ See *Wheeler c. Director de la Procuraduría General Del Estado de Loja*, Juicio No. 11121-2011-0010 ('Wheeler'), <<http://blogs.law.widener.edu/envirolawblog/2011/07/12/ecuadorian-courtrecognizes-constitutional-right-to-nature/>> and *República del Ecuador Asamblea Nacional, Comisión de la Biodiversidad y Recursos Naturales*, Acta de Sesión No. 66 (15 June 2011) ('*República del Ecuador Asamblea Nacional*'), <<http://asambleanacional.gov.ec/blogs/comision6/files/2011/07/acta-66.pdf>>. Spanish translations as per Erin Daly, 'The Ecuadorian Exemplar: the First Ever Vindication of Constitutional Rights of Nature' (2012) 21(1) *Review of European Community and International Environmental Law* 63.

⁹⁷ Melissa Troutman, 'Pennsylvania Ecosystem Fights Corporation For Rights In Landmark Fracking Lawsuit', *Public Herald* (online), 10 December 2014, <http://www.publicherald.org/archives/19582/invisible_hand/>.

⁹⁸ Burdon, above n 6, 71-74.

⁹⁹ Holmes Rolston III, 'Rights and Responsibilities on the Home Planet' (1993) 18 *Yale Journal of International Law* 251; Burdon, above n 6.

¹⁰⁰ Ngaire Naffine, 'Who are Law's Persons? From Cheshire Cats to Responsible Subjects' (2003) 66(3) *Modern Law Review* 346, 350, n 18.

duties, law establishes legal relations, and it also personifies: that is, it turns us into legal persons or legal actors, right holders and duty bearers, beings who are therefore capable of acting and relating in law'.¹⁰¹ Naffine distinguishes this 'legalist' definition from alternatives that focus on the moral nature of personhood, or its particular relationship to a 'natural' person.¹⁰²

The most common means by which the law expands the category of legal persons is the corporation, which was recognized in common law as having separate legal personality to its members and owners in 1897.¹⁰³ The separate legal personality of the private corporation was originally intended to limit the liability of shareholders and to promote investment.¹⁰⁴ Given this history, the corporate form is not a natural fit for the environment, but the emergence of not-for-profit corporations and statutory corporations owned and operated by governments¹⁰⁵ demonstrates its flexibility. Many environmental advocacy and charity organisations are created as not-for-profit corporations, and they have been relatively successful in obtaining legal standing to challenge government decisions that have environmental impacts.¹⁰⁶ However, to date, these organisations have not been considered as a legal form of personifying the environment itself; merely a way for concerned citizens to take legal action on issues that they care about.¹⁰⁷

However, there is a new wave of legal entities that are more explicitly representing the environment as a legal person in its own right. In New Zealand, the national park Te Urewera was established as a legal entity with 'all the rights, powers, duties, and

¹⁰¹ Ngaire Naffine, 'Review Essay: Liberating the Legal Person' (2011) 26(1) *Canadian Journal of Law and Society* 193, 193.

¹⁰² Naffine, *Law's Meaning of Life*, above n 86.

¹⁰³ *Salomon v Salomon & Co* [1897] AC 22.

¹⁰⁴ John Micklethwait and Adrian Wooldridge, *The Company: A Short History of a Revolutionary Idea* (The Modern Library, 2003); this form also has a long history of use for religious organisations.

¹⁰⁵ Marshall E Dimock, 'Government corporations: a focus of policy and administration, I' (1949) 43(5) *The American Political Science Review* 899.

¹⁰⁶ In Australia, see *Booth v Bosworth* (2001) 114 FCR; 117 LGERA 168; for a more recent state example, see *Environment East Gippsland Inc. v VicForests* (2010) 30 VR 1. In the USA, see *Lujan v Defenders of Wildlife* 112 S.Ct. 2130 (1992) and *Friends of the Earth v Laidlaw Environmental Services*, 528 U.S. 167 (2000).

¹⁰⁷ See specifically the comments of Scalia J in *Lujan*, 2136-7; see also Harold Feld, 'Saving the Citizen Suit: The Effect of *Lujan v. Defenders of Wildlife* and the Role of Citizen Suits in Environmental Enforcement' (1994) 19 *Columbia Journal of Environmental Law* 141; Ann E Carlson, 'Standing for the Environment' (1998) 45 *UCLA Law Review* 931.

liabilities of a legal person' in 2014.¹⁰⁸ Shortly, New Zealand will also extend legal personhood to the Whanganui River, in order to reach a settlement under the Treaty of Waitangi.¹⁰⁹ In the case of the Whanganui, although the river and its catchment (Te Awa Tupua) will be defined as a 'legal person [with] all the rights, powers, duties, and liabilities of a legal person',¹¹⁰ this model relies on the establishment of a guardian, Te Pou Tupua, to act on behalf of the river.¹¹¹

As described in Chapter 2, the EWMs have been created as legal persons in order to hold water rights for the aquatic environment. Although they may participate in other activities, their primary objective is to improve the health of aquatic ecosystems by increasing the quantity of environmental water at the appropriate times and places.¹¹² The EWMs use their legal personhood to give voice to the needs of the aquatic environment within policy debates, as well as negotiations and contractual agreements. Many of the EWM staff themselves believe that the EWMs *represent* the aquatic environment in various ways.¹¹³ By participating in water markets, the EWMs combine the capacity to hold legal powers with the competence to use those powers, and are a compelling example of the importance of environmental markets in establishing legal personhood.

2. *Market Environmentalism*

Markets have been embraced by governments and regulators around the world to achieve environmental outcomes, as a lower-cost alternative to prescriptive management.¹¹⁴ As Chapter 2 highlighted, the use of environmental markets has two distinct aims: firstly, to address the market failure caused by public good properties of natural resources allocated to the environment (non-rival and non-excludable use), by

¹⁰⁸ *Te Urewera Act 2014* (NZ) s 11.

¹⁰⁹ Kathleen Calderwood, *Why New Zealand is Granting a River the Same Rights as a Citizen* Sunday Extra, Radio National, ABC (online) 6 September 2016 <<http://www.abc.net.au/radionational/programs/sundayextra/new-zealand-granting-rivers-and-forests-same-rights-as-citizens/7816456>>.

¹¹⁰ *Te Awa Tupua (Whanganui River Claims Settlement) Bill 2016* s 14(1).

¹¹¹ *Te Awa Tupua (Whanganui River Claims Settlement) Bill 2016* ss 14(2), 18.

¹¹² Chapter 2, 41; see also detailed discussion in Chapters 5 and 6.

¹¹³ Although this is not a universal interpretation, see Chapter 8, 230.

¹¹⁴ R H Coase, 'The Problem of Social Cost' (1960) 3 *Journal of Law and Economics* 1; David Driesen, 'Economic Instruments for Sustainable Development' in Benjamin J Richardson and Stepan Wood (eds), *Environmental Law for Sustainability* (Hart Publishing, 2006) 277 Jeff Bennett, 'The Principles and Practice of Protecting the Environment Privately' in Jeff Bennett (ed), *Protecting the Environment, Privately* (World Scientific Publishing, 2016) 1.

increasing the allocation to the environment; and secondly, to *manage* that allocation efficiently, so that it generates the maximum possible environmental outcomes.¹¹⁵ It is also acknowledged that markets are a form of regulation, not a replacement for it,¹¹⁶ and require ongoing involvement from government. In particular, environmental markets depend on significant government investment in the creation and enforcement of property rights, and the provision of publicly accessible information exchange platforms to facilitate transfers.¹¹⁷

Environmental markets have typically focused on cost-effective ways to limit pollution, or improving environmental quality. In his 2000 review, Thompson described these environmental markets as regulatory markets, or public goods and ecosystem services markets.¹¹⁸

Regulatory markets aim to internalize negative externalities, such as point source pollution. The earliest example of this sort of market is the cap and trade scheme for sulfur dioxide pollution in North America.¹¹⁹ Governments set the cap on pollution, and created transferable pollution permits, enabling low cost industries to sell excess permits to high cost industries.¹²⁰ In these markets, typically there was one seller (government via auction) and many buyers (the pollution-generating industry), with some on-selling (between industry), but with little to no opportunity for organisations representing the environment itself to engage, although occasionally environmental groups would attempt to purchase pollution rights (effectively lowering the cap).¹²¹ This remains rare, because it is unlikely for environmental organisations to be able to afford to acquire the sheer volume of rights necessary to make a real difference, especially in international

¹¹⁵ Lee S Friedman, *The Microeconomics of Public Policy Analysis* (Princeton University Press, 2002); Ian R Wills, *Economics and the Environment: a Signalling and Incentives Approach* (Allen and Unwin, 1997); Tom Tietenberg and Lynne Lewis, *Environmental and Natural Resource Economics* (Pearson, 7th ed, 2006).

¹¹⁶ Anderson and Libecap, above n 7, 9.

¹¹⁷ Poh-Ling Tan, 'A Property Framework for Water Markets: The Role of Law' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar, 2005) 56; D E Fisher, 'Markets, Water Rights and Sustainable Development' (2006) 23 *Environmental and Planning Law Journal* 100; Anderson and Libecap, above n 7, 86.

¹¹⁸ Barton H Thompson Jr, 'Markets for Nature' (2000) 25 *William and Mary Environmental Law and Policy Review* 261.

¹¹⁹ Vivien Foster and Robert Hahn, H, 'Designing More Efficient Markets: Lessons from Los Angeles Smog Control' (1995) 38 *Journal of Law and Economics* 19; see also discussion in Anderson and Libecap, above n 7.

¹²⁰ Wills, above n 115.

¹²¹ Anderson and Libecap, above n 7.

markets such as carbon emissions trading; and highlights the problem of free-riders benefiting from others' investment in the environment.

Public goods markets and ecosystem services markets, on the other hand, were introduced to enable efficient investment in the increased production of a public good¹²² or ecosystem service. These markets internalize a positive externality (such as a wetland,¹²³ or biodiversity¹²⁴), which provides benefits in ways that are difficult to protect as private property rights.¹²⁵ These markets are often structured as the inverse of the regulatory markets: a single buyer (usually government, occasionally an environmental NGO), with many potential sellers (such as private land owners).¹²⁶ However, these markets also rarely stimulated further trade of the environmental good, and thus were often simply a one-off mechanism for increasing production without necessarily changing norms or creating private value for ecosystem services, and they have not yet evolved into ongoing multi-buyer, multi-seller markets.¹²⁷

However, I argue that there is a third type of environmental market, which I term the 'shared resource' market, which is a means of managing access to scarce natural resources which have value to both the environment as well as a range of other users. Shared resource markets are multi-buyer, multi-seller markets in which environmental organisations can participate, and they often emerge from existing rights-based regulatory frameworks for managing access to scarce resources. For instance, fishing licences are now traded in many locations, and in one recent example, the World

¹²² Friedman, above n 115, chapters 15-17.

¹²³ Stuart M Whitten and Jeff Bennett, *Managing Wetlands for Private and Social Good: Theory, Policy and Cases from Australia*, New Horizons in Environmental Economics (Edward Elgar, 2005); J B Ruhl and R Juge Gregg, 'Integrating Ecosystem Services into Environmental Law: a Case Study of Wetlands Mitigation Banking' (2001) 20 *Stanford Environmental Law Journal* 365; Morgan M Robertson, 'The Neoliberalization of Ecosystem Services: Wetland Mitigation Banking and the Problem of Measurement' in Nik Heynen et al (eds), *Neoliberal Environments: False Promises and Unnatural Consequences* (Routledge, 2007) 217.

¹²⁴ Louise Fromond, Jukka Similä and Leila Suvantola, 'Regulatory Innovations for Biodiversity Protection in Private Forests: Towards Flexibility' (2009) 21(1) *Journal of Environmental Law* 1; Jonathon Remy Nash, 'Trading Species: a New Direction for Habitat Trading Programs' (2007) 32 *Columbia Journal of Environmental Law* 1.

¹²⁵ Ruhl and Gregg, above n 123; Whitten and Bennett, above n 123; Robertson, above n 123.

¹²⁶ James Salzmänn, *Designing Payment for Ecosystem Services* (Property and Environment Research Centre, 2010).

¹²⁷ Ibid.

Wildlife Fund recently purchased a shark fishing licence.¹²⁸ Acting on behalf of the environment, the WWF effectively 'acquired' the right to those sharks, which it then retained in the ecosystem.

Although the literature does not explicitly identify these markets as qualitatively different to the other forms of environmentally-oriented markets, Anderson and Libecap implicitly engage with the concept of shared resource markets as part of their arguments for government creation of the 'missing markets' that, they argue, underpin many environmental problems.¹²⁹ They overlook, however, some of the opportunities of the shared resource market as a unique market form. I argue that the shared resource markets are the mechanism that has done most to shift the construction of the environment itself to that of a participant in the market, by enabling organisations acting on behalf of the environment to be both buyer and seller. They have also reframed the environment as a competitor with other human users.

3. *Water Markets as a Driver of Personhood*

Water markets are one of the oldest examples of a shared resource market, and were established to manage access to a scarce resource,¹³⁰ rather than as a direct mechanism for environmental protection.¹³¹ Water is a resource required by diverse users: people (drinking and hygiene), industry (farms, mines and other commercial uses) and the aquatic environment. As a result, water markets offer a way of increasing both allocative efficiency (enabling transfers between different uses as demand and supply changes) and productive efficiency (enabling transfers to higher value uses within or between use types).

¹²⁸ Stephanie Small, 'WWF Australia Buys \$100,000 Shark Net Licence to Stop it Ending Up in Hands of Fishers' *ABC News* (online) 13 July 2016, <<http://www.abc.net.au/news/2016-07-13/shark-fishing-commercial-licence-bought-by-wwf-reef/7625532>>.

¹²⁹ Anderson and Libecap, above n 7.

¹³⁰ John Freebairn, 'Principles and Issues for Effective Australian Water Markets' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar, 2005) 8; Howard Chong and David Sunding, 'Water Markets and Trading' (2006) 40 *Annual Review of Environment and Resources* 239; Lin Crase, Phil Pagan and Brian Dollery, 'Water Markets as a Vehicle for Reforming Water Resource Allocation in the Murray-Darling Basin of Australia' (2004) 40(Wo8So5) *Water Resources Research* doi:10.1029/2003WR002786; Robert Glennon, 'Water Scarcity, Marketing, and Privatization' (2005) 83 *Texas Law Review* 1873; R Quentin Grafton et al, 'An Integrated Assessment of Water Markets: A Cross-Country Comparison' (2011) 5(2) *Review of Environmental Economics and Policy* 219.

¹³¹ Brandon Scarborough, *Environmental Water Markets: Restoring Streams Through Trade* (Property and Environment Research Centre, 2010).

This type of market offers a unique opportunity for the aquatic environment to engage and participate. There are multiple buyers and multiple sellers, and the aquatic environment (via the EWMs and their legal context) can operate as both a seller and a buyer. The EWMs participate in the market, with funds, assets and the capacity to manage their own ongoing operations. For example, Australia's Commonwealth Environmental Water Holder is now the largest single holder of water in the Murray-Darling Basin.¹³²

As shared resource markets, water markets reframe the aquatic environment as a market participant, and a competitor for access to a scarce resource. The EWMs, as participants within a water market, thus combine the capacity for legal rights with the competence to use those legal rights. Water markets, as a driver of legal personhood for the environment, demonstrate how the two very different ideologies of environmentalism (particularly the legal rights for nature movement) and environmental markets are brought together by the question of legibility.

Environmentalists have long considered nature as incommensurable with neoliberalisation and markets,¹³³ private property as an enemy of effective environmental protection,¹³⁴ and the co-existence of private property alongside a commons as a recipe for disaster.¹³⁵ However, neoclassical economists argue that it is the result of poorly defined property rights and missing markets that causes environmental problems, and that enhancing these rights is an integral part of the solution.¹³⁶ Part of the resolution to this dilemma lies in the way that the law constructs the environment. Where the environment is still a legal object, private property rights may act to obscure the environment from the law, by limiting the capacity of the law to control a property holder's actions that threaten the environment.¹³⁷ However, where the environment is constructed as a legal subject, property instead becomes a significant source of legal

¹³² See Chapter 5.

¹³³ Nik Heynen et al, 'Conclusion: Unnatural Consequences' in Nik Heynen et al (eds), *Neoliberal Environments: False Promises and Unnatural Consequences* (Routledge, 2007) 287, 289-290.

¹³⁴ Eric T Freyfogle, 'Ownership and Ecology' (1993) 43(4) *Case Western Reserve Law Review* 1269

¹³⁵ Garrett Hardin, 'The Tragedy of the Commons' (1968) 162 *Science* 1243.

¹³⁶ Jonathan H Adler, 'Back to the Future of Conservation: Changing Perceptions of Property Rights and Environmental Protection' (2005) 1 *New York University Journal of Law and Liberty* 987; Jonathan H Adler, 'Water Rights, Markets and Changing Ecological Conditions' (2012) 42 *Environmental Law* 93.

¹³⁷ Joseph L Sax, 'Using Property Rights to Attack Environmental Protection' (1996) 14 *Pace Environmental Law Review* 1.

power for the environment, and a way for the law to directly see and engage with the environment, as holder of property.

For the EWMs, the capacity to hold water rights strengthens their voice in law and in policy debates.¹³⁸ However, despite their similarity to other water market participants, the EWMs continue to face the ongoing challenge of defining how much water is enough for the environment, and how to quantify environmental benefits achieved for the cost of the water.¹³⁹ This makes the EWMs fundamentally different to private, consumptive water users, who can point to the income generated by their use of water as a measure of value. It also places the EWMs in the uncomfortable position of competing with other water users, whilst also depending on long-term community support for their operation.¹⁴⁰

In summary, personification of the environment in law has occurred at the nexus of two global trends: (1) legal rights for nature, and explicit use of legal personhood as a vehicle for those rights; and (2) market environmentalism. Using the EWMs and legal rights to water to empower the aquatic environment has shifted the personification debate from blue sky proposal into legal reality. Increased market power for the aquatic environment can enhance its legal power, but also has the capacity to erode the special status of the environment as being considered *worthy* of protection. The market has long been recognized as having the capacity to alter social norms: 'the institution of the market, and its ever-expanding proclivities, represents a shift in the normative underpinning to social action which disturbs that which was previously extant.'¹⁴¹ The next section considers the relationship of cultural values to the legal constructions of the environment.

¹³⁸ See Chapter 2, 52; see also Chapters 5 and 6.

¹³⁹ See, eg, James Boyd, Dennis King and Lisa Wainger, 'Compensation For the Lost Ecosystem Services: the Need for Benefit-Based Transfer Ratios and Restoration Criteria' (2001) 20 *Stanford Environmental Law Journal* 393; Mark Morrison and Jeff Bennett, 'Valuing New South Wales Rivers for Use in Benefit Transfer' (2004) 48(4) *Australian Journal of Agricultural and Resource Economics* 591; Whitten and Bennett, above n 123.

¹⁴⁰ See Chapters 5-7.

¹⁴¹ Mark Peacock, 'Rationality and Social Norms' in John Foster (ed), *Valuing Nature? Economics, Ethics and Environment* (Routledge, 1997) 67, 73.

III. CULTURAL NARRATIVES AND THE CONSTRUCTION OF THE ENVIRONMENT

The life of law is not logic nor experience, but a narrative way of worldmaking. . . Like all tales, legal stories gain meaning and significance from the selective emphasis on certain features of our always complex and frequently ambiguous experience...¹⁴²

Recent scholarship emphasises the complex relationship between the law and the cultural narratives that underpin its form and function.¹⁴³ This relationship is especially close for environmental law, with its reliance on statute passed by the government of the day.¹⁴⁴ Robin Kundis Craig and Melinda Harm Benson have both argued that the way we tell stories about environmental problems shapes the way we think about them, which in turn shapes the legal solutions available to us.¹⁴⁵

Kundis Craig defines cultural narratives as ‘deeply embedded social stories that frame and contextualize events within a particular culture to help give them meaning.’¹⁴⁶ A narrative can be a useful way of conceptualizing a complex problem, using the logic of a story to help frame both problem and solution. In the context of complex, goal-oriented legal frameworks like that of environmental law, narratives ‘can also help to instill value systems into members of the community prior to, or instead of, individual experience’.¹⁴⁷ Community members can thus be primed by the dominant narrative to react in a particular way.

Narratives are also, by their very nature, specific. They tend to tell a single story, which means that alternative narratives can be excluded or displaced. This is a real challenge for environment law, where there are myriad definitions of environment, and multiple narratives underpinning the importance of protection and sustainable management of the environment.¹⁴⁸ The construction of the environment in law as a socio-ecological concept makes the environment particularly vulnerable to narrative shifts. In addition,

¹⁴² Allan C Hutchinson, *Dwelling on the Threshold: Critical Essays on Modern Legal Thought* (Carswell, 1988), 14.

¹⁴³ Burger, above n 9; Michael Burger, 'Recovering From the Recovery Narrative: on Glocalism, Green Jobs and Cyborg Civilization' (2013) 46(4) *Akron Law Review* 909.

¹⁴⁴ Environmental law's reliance on statute stems from the inadequacy of common law to deal meaningfully with significant environmental problems such as pollution and prior assessment of impacts, see Preston, above n 12.

¹⁴⁵ Harm Benson, above n 1; Craig, above n 9.

¹⁴⁶ Craig, above n 9, 352.

¹⁴⁷ Ibid, 355.

¹⁴⁸ For examples of the multiple narratives on climate change, see *ibid*; see also, Harm Benson, above n 1.

the constructions of the environment as a legal object and a legal subject are supported by particular narratives about the value of the environment to human society. These narratives matter because of their power to shape the regulatory response to environmental problems.

A. *Legal Object: Weak but Worthy of Protection*

The translation of the environment into a legal object has been largely as the result of the intentional creation of new statutory laws to bring particular actions under legal control. This construct frames the environment as fundamentally worthy of protection, but as legally weak, depending on the actions of others to protect it. The narrative of ‘weak but worthy of protection’ not only links the two elements of *worthiness* and *weakness*, but makes willingness to protect the environment *dependent* on its construction as legally weak. In addition to framing the way that community members feel about the environment, this narrative also embeds a particular regulatory response. A legal object cannot (and in this narrative, *should not*) speak for itself, and thus this narrative supports a public interest theory of regulation: that the regulators should act to protect vulnerable areas in the interests of broader social good.¹⁴⁹

Most of modern environmental law is an example of public interest regulation, created by the legislature based on ‘a desire to pursue collective goals with the aim of promoting the general welfare of the community’.¹⁵⁰ Morgan and Yeung distinguish between public interest regulation created to (1) fix a market failure (Pigovian welfare economic regulation),¹⁵¹ (2) achieve a particular political goal (substantive political regulation) or (3) establish participatory processes for public engagement in regulatory mechanisms (procedural political regulation).¹⁵² Environmental law can clearly be all three, but the definition of the environment is most closely drawn from ‘the public interest goals of the substantive political approach’.¹⁵³

¹⁴⁹ Morgan and Yeung, above n 10; Cass R Sunstein, *After the Rights Revolution: Reconceiving the Regulatory State* (Harvard University Press, 1990).

¹⁵⁰ Morgan and Yeung, above n 10, 17.

¹⁵¹ Arthur Cecil Pigou, *The Economics of Welfare* (Macmillan, 4th ed, 1932); this market failure is a result of the public good properties of the environment.

¹⁵² Morgan and Yeung, above n 10, chapter 2.

¹⁵³ *Ibid*, 41.

Sunstein argued that the substantive political approach can include the desire to protect vulnerable values (such as endangered species) from irreversible loss.¹⁵⁴ He conceived of the law as a mechanism for people to enforce their political decisions, which may reflect ‘meta-preferences or second-order preferences... and sometimes they try to vindicate those second-order wishes, or considered judgments about what is best’,¹⁵⁵ and that ‘[as] citizens, people may seek the aid of the law to bring about a social state in some sense higher than what emerges from market ordering’.¹⁵⁶ Regulation in this instance is considered a way to reflect these broader, collective preferences about what *should* be regulated: ‘public interest theories place an emphasis on the goals, functions and values that *justify* regulation’ (emphasis added).¹⁵⁷

Modern environmental statutes are an inherently normative statement about what qualities or features of the environment should be protected. As such, modern environmental law is contingent on both a collective desire to regulate impacts on the environment, and a collective belief that such regulation is justified. Modern environmental law relies on the idea that the environment is *worthy* of protection, and constructs the environment as a legal object that others, usually the state, are empowered to protect.¹⁵⁸

However, such a view is also contingent on the idea that the environment cannot speak for itself. Public interest theories of regulation depend on the idea that regulation must reflect a *collective* belief, which is more than the sum of individual preferences. If the environment has the capacity to voice its own opinions, or the power to seek its own legal remedies, it would be much less reliant on public interest regulation. The idea that the environment is worthy of protection in law (and the nature of environmental law as public law) is thus indelibly linked to the idea that it cannot protect itself. The environment is presented in modern environmental law as a passive legal object, a locus of deserved protection, but without the power to speak on its own behalf.

¹⁵⁴ Sunstein, above n 149.

¹⁵⁵ Ibid, 58.

¹⁵⁶ Ibid.

¹⁵⁷ Morgan and Yeung, above n 10, 75.

¹⁵⁸ Fisher, above n 3, see rules of limitation discussion, Chapter 3, 70.

B. *Legal Subject: More Power, Less Protection?*

The personification of the environment in law has constructed the environment as a legal subject, represented by a specific legal entity. This construct represents the pinnacle of legibility to the law, and establishes the environment with the same basic set of legal powers as any other person in law, including the capacity to speak and act on its own behalf.¹⁵⁹ Again, the narrative underpinning this construct is normative: the environment has the same legal powers as everyone else, and so it can, *and should*, look after itself. This narrative represents a dramatic shift in community expectations of the environment, and can be linked to the increasing popularity of using market-based instruments to manage environmental assets.¹⁶⁰ In a Coasian framework,¹⁶¹ the environment has been shifted from a property right held by others, to the holder of property rights and a bargainer in its own right. This narrative also shapes the regulatory response, by depending on a private interest theory of regulation: that regulation emerges as a result of competing private interests.¹⁶² The environment is no longer entitled to receive special treatment, but is expected to compete for regulatory outcomes with other individuals and interest groups.

Traditional debates about legal rights for the environment have emphasised legal standing,¹⁶³ but this thesis argues that the capacity to engage in policy debates is at least as significant for the construction of the environment as a legal person. The environment as legal object was able to rely on public interest theories of regulation, where policy makers operated on its behalf to protect it. A person, however, 'is a being who has a sense of self, has a notion of the future and the past, can hold values [and] make choices'.¹⁶⁴ Legal persons, when represented by distinct organisations like the EWMs, have a voice in policy debates and can articulate what they want for themselves. The personification of the environment transitions environmental protection laws out of public interest theories of regulation and into private interest theories, where regulations

¹⁵⁹ Of course, such speaking and acting will be undertaken by the organisation representing the environment, not the trees, rivers or animals themselves.

¹⁶⁰ Anderson and Libecap, above n 7; Jeff Bennett (ed), *Protecting the Environment, Privately* (World Scientific Publishing, 2016).

¹⁶¹ Coase, above n 114.

¹⁶² Morgan and Yeung, above n 10; Gary S Becker, *The Economic Approach to Human Behaviour* (University of Chicago Press, 1976).

¹⁶³ Eg, see Stone, above n 62 and more recently, Stone, above n 63.

¹⁶⁴ Charles Taylor, 'The Concept of a Person' in Charles Taylor (ed), *Philosophical Papers Volume 1: Human Agency and Language* (Cambridge University Press, 1985) 97, 97.

are the aggregate of different interest group pressures and the regulators are merely 'conduits and aggregators'.¹⁶⁵ Under private interest regulation theory, regulation is only the result of competition between these different interest groups.¹⁶⁶

Creating an entity to represent the environment in law generates real narrative and regulatory tensions. A voice enables participation in policy debates, so that environmental needs and values are injected into the policy debate during the formative stages, when they are likely to have the most impact. However, a voice alone is likely to be insufficient. If the legal entity lacks financial support, it will not be able to pursue legal challenges in court.¹⁶⁷ In policy debates, whilst a voice can give the environment a 'seat at the table', if the voice does not come with sufficient real world power, it may go unheard. This is the real risk of the creation of a 'voice' for the environment: it suggests that the environment is competing with other interest groups on a level playing field, when that may not be the case at all, and 'those most able to command electoral resources and those whose interests overlap with other groups' will tend to prevail; those with fewer resources and more unique interests will tend not to prevail.¹⁶⁸

In summary, engaging with both these legal constructs and their underpinning narratives highlights two key findings. Firstly, there is real normative tension between the narratives that underpin the environment as a legal object and as a legal subject. As a legal object, the environment is positioned as worthy of protection, and that humans *should* protect it because it cannot act to protect itself. As a legal subject, this narrative is excluded, and the environment is presented as an entity that can, and therefore *should*, act on its own behalf. The simultaneous construction of the environment as both a legal object and a legal subject brings these narratives into competition, and creates tension in how community members conceive of and value their environment.

Secondly, the construction of the environment as a socio-ecological concept is extremely vulnerable to changes in the way that the environment is articulated in law. This creates a unique vulnerability for the environment that cannot be addressed by merely leveling

¹⁶⁵ Stephen P Croley, 'Theories of Regulation: Incorporating the Administrative Process' (1998) 98(1) *Columbia Law Review* 1, 58.

¹⁶⁶ Morgan and Yeung, above n 10.

¹⁶⁷ See, for example, Chris McGrath, 'Flying Foxes, Dams and Whales: Using Federal Environmental Laws in the Public Interest' (2008) 25(5) *Environmental and Planning Law Journal* 324.

¹⁶⁸ Croley, above n 165, 59.

the playing field, or adjusting for historical imbalance. The need to continually re-articulate what the environment is, and why it is important, means that shifts in these values can have profound effects.

On the one hand, the EWMs appear well-placed to represent the environment in policy debates: they hold water rights, and they have the same sorts of legal powers as other users of water, including the right to sit on various water user committees.¹⁶⁹ On the other, however, the EWMs also depend on continued support from the relevant community for their environmental objectives,¹⁷⁰ which makes them more vulnerable than other water users.¹⁷¹

IV. CONSTRUCTING THE ENVIRONMENT IN LAW: A CONCEPTUAL FRAMEWORK

This chapter shows that the constructions of the environment in law can be described in three ways. At the broadest level, the environment is a socio-ecological concept based on a combination of physical features and social values. This concept is articulated in the purposes, objectives and definitions of environmental statutes.

Next, the natural environment is *translated* into a legal object. This construct enables the creation of procedural protections, which place limits on the actions of others that may affect the environment. The environment itself remains passive: it is a thing to be protected. This construct of the environment is contingent on the natural environment being perceived by society as deserving of this protection.¹⁷²

Lastly, the environment can be *personified* as a legal subject, which gives the natural environment legal rights. Where the environment has legal rights but no form, it will be dependent on others to enforce those legal rights.¹⁷³ Alternatively, an organisation can be created to represent part of the environment.¹⁷⁴ Through the legal powers of this organisation, the environment may now take action on its own behalf (at least to a

¹⁶⁹ See particularly the example of the CEWH, Chapter 5, 144, and Chapter 7, 205.

¹⁷⁰ Many EWMs are NGOs (Chapters 2, 5 and 6), which are critically dependent on public support. Even when EWMs are government organisations, and their environmental objectives are included in legislation, they remain vulnerable to shifts in public opinion that could give rise to changes in legislation (Chapter 7).

¹⁷¹ This tension is examined in Chapters 5-7.

¹⁷² Doremus, above n 73.

¹⁷³ This is the case in Ecuador, for example.

¹⁷⁴ Such as the EWMs; or in the case of the Whanganui River in New Zealand, the guardian organisation responsible for making decisions on behalf of the river.

certain extent). This use of markets to achieve environmental outcomes can enhance personification in law, but also reframes the environment as a competitor within the market.

Although there is a distinct pattern of chronology, all three legal constructs of the natural environment are extant within modern environmental law, and are interrelated by the processes of translation and personification, and underpinned by inconsistent narratives which generate different regulatory responses, as the role of the environment shifts between something worthy of protection and something that should be able to protect itself.

Figure 1 presents a new conceptual framework that shows the relationship between the legal constructs, the processes by which they emerged and the legibility of the environment to law.

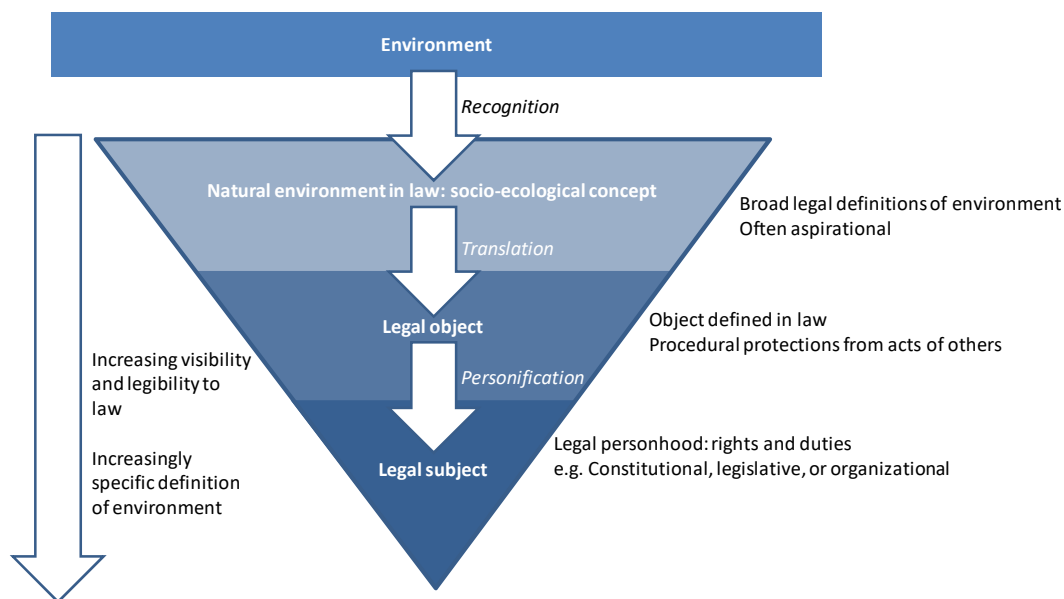


Figure 1 Conceptual framework of the constructions of the environment in law

This conceptual framework is a significant contribution to existing environmental law scholarship, and will be used to identify the multiple constructions of the aquatic environment in water law, including the EWMs, and their underpinning narratives.

V. CONCLUSION

In this chapter, a historical review of environmental law has shown that the environment is constructed in modern environmental law in three main ways:

1. *Recognition* of the broad *socio-ecological concept* of the 'natural environment';¹⁷⁵ followed by
2. *Translation* into the more specific *legal object*, which is protected by placing legal limits on the actions of others (the vast bulk of environmental law);¹⁷⁶ and followed by
3. *Personification* into the much more specific *legal person*, with legal rights and duties of its own (still a rarity in environmental law).¹⁷⁷

Each construction has increased the legibility of the environment to law, by making the environment increasingly visible and comprehensible to the law. However, the constructs are underpinned by cultural narratives, which can interact and change over time. The conceptual framework shows that there is real tension between the competing narratives supporting the environment as a legal object and as a legal subject, and that the socio-ecological concept is particularly vulnerable to shifts in narrative.

By connecting the construction in law, to the narrative, and the regulatory response, this conceptual framework can be applied to the creation and operation of the EWMs in the two case studies (south-eastern Australia and the western USA) to illuminate the legal context of the EWMs, and to identify and understand the ways in which the aquatic environment is constructed in water law. In doing so, this conceptual framework can help to help answer the question: what happens when the aquatic environment is constructed as a legal subject, and why?

The next chapter details the methods used to undertake the case studies, which include a combination of legal analysis of the water law frameworks, and content analysis of interviews with EWM staff. These methods are then applied to the case studies in Chapters 5 and 6.

¹⁷⁵ Daniel A Farber, 'From Plastic Trees to Arrow's Theorem' (1986) 1986 *University of Illinois Law Review* 337; Laurence H Tribe, 'Ways Not to Think About Plastic Trees: New Foundations for Environmental Law' (1974) 83 *Yale Law Journal* 1315; Mark Sagoff, 'On Preserving the Natural Environment' (1974) 84 *Yale Law Journal* 205; Soper, above n 35.

¹⁷⁶ Gunningham, above n 2; Fisher, above n 3, chapters 9-11.

¹⁷⁷ Christopher D Stone, 'Response to Commentators' (2012) 3 (Special Issue) *Journal of Human Rights and the Environment* 100.

Chapter 4

Research Methods

I. INTRODUCTION

The environmental water managers (EWMs) are organisations with the attributes of legal personhood, which they use to acquire and manage water rights for environmental purposes.¹ To understand what happens when the aquatic environment is constructed as a legal subject, it is necessary to undertake a detailed and nuanced examination of the EWMs and their legal and historical context.

Chapter 2 identified the locations of the currently operating EWMs, and most of the EWMs are found in south-eastern Australia, and the western USA. These two areas have a number of similarities, but also have distinct water law frameworks, and their EWMs use different legal forms and perform different functions.² This chapter sets out the methods used to examine the EWMs of each location in sufficient detail to identify and understand the interaction between the multiple constructions of the environment in water law.³

Investigation of the EWMs in situ requires research methods that can engage with both the creation and the operation of the EWMs. Understanding how and why they undertake their activities as legal persons requires a deep engagement with their specific legal context, including the effects of history and location. To do so, I use two distinct methods: legal analysis of statute, case law and other legal instruments, and an interpretative method drawing on textual analysis of publicly available material and in-depth interviews with EWM staff.⁴ These interviews are a significant contribution of this research, and provide nuanced insight into the operation of the EWMs that enables us to go beyond the public face of these organisations, shedding light on how the EWMs interact with their legal context, and the different cultural narratives about the aquatic environment.

¹ Chapter 2, 41.

² See Chapter 2 and Chapter 4, 94.

³ This analysis is undertaken as part of Chapters 5-7.

⁴ Garry Thomas, *How to Do Your Case Study: A Guide for Students and Researchers* (SAGE Publications, 2011), see particularly the discussion of the interpretative approach, 124-129.

Most legal scholarship is ‘normative, theoretical, or doctrinal’⁵, but empirical research is increasingly recognised as important, and undertaken by legal scholars.⁶ Before detailing the specifics of these methods, it is worth considering why it is so useful to use qualitative empirical methods for this type of legal research.

A. *Empirical Research in Law and the Role of Qualitative Research*

[T]here is no reaching a judgment as to whether any specific part of present law does what it ought, until you can first answer what it is doing now.⁷

Empirical research uses ‘observations of the world . . . to verify the conclusions of the inquiry’.⁸ In many ways, empirical legal research is built on the foundation of realism.⁹ Although the realist scholars were concerned less with conducting empirical research themselves, and more about *acknowledging* the social and cultural context in which law exists, contemporary empirical legal research could not have emerged in the absence of this heritage. In particular, empirical legal research focuses on ‘a question in first instance of fact: what does law *do*, to people or for people?’¹⁰ In 2008, Miles and Sunstein argued that the capacity to engage with empirical data offered by new technology was giving rise to a ‘new legal realism’, grounded in data, observation and empirical analysis.¹¹

The relevance of this approach to the EWMs in particular is twofold. Firstly, as Leeuw and Schmeet argue, lawyers and law makers ‘make devices for others... [such as] regulations, statutes and constitutions, and companies (i.e. their legal structure). However, between ambition and reality can be discrepancies...’¹² The EWMs are one such ‘device’, and they have been created in order to improve the health of aquatic ecosystems by increasing the volume of environmental water, and the efficiency of its management.

⁵ Robert J Landry III, ‘Empirical Scientific Research and Legal Studies Research—A Missing Link’ (2016) 33(1) *Journal of Legal Studies Education* 165, 169.

⁶ Daniel R Cahoy, ‘Editor’s Corner: Considerations in the Rise of Empirical Legal Scholarship’ (2010) 47 *American Business Law Journal* v; Michael Heise, ‘The Importance of Being Empirical’ (1999) 26 *Pepperdine Law Review* 807; Frans L Leeuw and Hans Schmeet, *Empirical Legal Research: A Guidance Book for Lawyers, Legislators and Regulators* (Edward Elgar, 2016).

⁷ Karl N Llewellyn, ‘Some Realism about Realism: Responding to Dean Pound’ (1931) 44 *Harvard Law Review* 1222, 1223.

⁸ Robert A Bernstein and James A Dyer, *An Introduction to Political Science Methods* (Pearson, 3rd ed, 1992), xiii.

⁹ Leeuw and Schmeet, above n 6.

¹⁰ Llewellyn, above n 7, 1223.

¹¹ Thomas J Miles and C Sunstein, ‘The New Legal Realism’ (2008) 75 *The University of Chicago Law Review* 831.

¹² Leeuw and Schmeet, above n 6, 6.

Secondly, Landry has argued that ‘a strong empirical foundation in a policy domain can bolster the persuasiveness of a particular underlying theoretical foundation.’¹³ The EWMs have been created to achieve particular policy goals, but understanding their longer term implications requires engagement with a broader theoretical framework.¹⁴ However, giving these theoretical insights meaning for the policy and law makers responsible for the creation and operation of the EWMs requires research methods that ground this theoretical analysis in rich data.

Methodologically, empirical research is ‘the systematic collection of information (“data”) and its analysis according to some generally accepted method’.¹⁵ As a result, the methods used must be relevant to the research questions, buttressed against any inherent weaknesses (which all empirical methods have) and presented in a transparent manner, so that future research can attempt to replicate the findings.

Empirical research can be undertaken using quantitative or qualitative methods. These are often considered as opposing paradigms, where quantitative methods generate ‘objective, generalisable and, by implication, value-free’ results, whereas qualitative methods are typically seen as ‘soft and subjective’.¹⁶ Whilst this historical conflation of quantitative methods with ‘hard’ data and qualitative with ‘soft’ is no longer generally accepted, the qualitative and quantitative methods are indeed better suited to particular types of research questions. Quantitative methods lend themselves to deductive methods of inquiry, particularly in experimental settings, to test hypotheses.¹⁷ Qualitative methods, on the other hand, offer insight into how and why a phenomenon of interest is

¹³ Landry III, above n 5, 168; see also Heise, above n 6.

¹⁴ Chapter 3, 87.

¹⁵ Peter Cane and Herbert M Kritzer (eds), *The Oxford Handbook of Empirical Legal Research* (Oxford University Press, 2010), 4-5; Robert M Lawless, Jennifer K Robbennolt and Thomas S Ulen, *Empirical Methods in Law* (Wolters Kluwer/Aspen Publishers, 2nd ed, 2010), 7.

¹⁶ Hilary P M Winchester, ‘Qualitative Research and its Place in Human Geography’ in Iain Hay (ed), *Qualitative Research Methods in Human Geography* (Oxford University Press, 2nd ed, 2005) 3, 10.

¹⁷ Kevin Laws and Robert McLeod, ‘Case Study and Grounded Theory: Sharing Some Alternative Qualitative Research Methodologies with Systems Professionals’ (Paper presented at the 22nd International Conference of the Systems Dynamics Society, Oxford (25-29 July), 2004), Robert Y Cavana, Brian L Delahey and Uma Sekaran, *Applied Business Research: Qualitative and Quantitative Methods* (John Wiley and Sons, 2001).

occurring in context, and typically rely on a more holistic, inductive approach to data gathering and analysis.¹⁸

To date, the analysis of the EWMs and their role in environmental water management has largely used quantitative methods to evaluate the efficiency and efficacy of this particular method of recovering and applying environmental water to achieve environmental outcomes.¹⁹ Going beyond the questions of efficacy and efficiency requires an examination of the EWMs in the context of both water law, and water resource management within communities of water users.

For this reason, this thesis uses qualitative research methods to understand *how* the EWMs construct the aquatic environment in law, and the *relationship* between the EWMs and their legal context. As highlighted above, these qualitative methods include (1) establishing south-eastern Australia and western USA as case studies; (2) legal analysis of legislation and other legal instruments, as well as a review of other publicly available material produced by and about the EWMs; and (3) content analysis of long-form interviews with staff of the EWMs, to enrich and deepen the legal analysis.

The next sections detail the qualitative research methods used to produce transparent, rigorous research that helps to answer the question: what happens when the aquatic environment is constructed as a legal person?

II. RESEARCH METHODS

EWMs are located in 19 jurisdictions, and 16 of the 19 are located in south-eastern Australia and the western states of the United States of America.²⁰ These two regions are treated as case studies, and the EWMs of those regions are examined in detail using legal analysis, interpretation of publicly available material and interviews with senior employees of the EWMs.

¹⁸ Gale Miller and Robert Dingwall (eds), *Context and Method in Qualitative Research* (SAGE Publications, 1997); Laws and McLeod, above n 17; Winchester, above n 16.

¹⁹ See, eg, Sarah Wheeler et al, 'Evaluating Water Market Products to Acquire Water for the Environment in Australia' (2013) 30 *Land Use Policy* 427; Dustin Garrick and Bruce Aylward, 'Transaction Costs and Institutional Performance in Market-Based Environmental Water Allocation' (2012) 88(3) *Land Economics* 536; Dustin Evan Garrick, *Water Allocation in Rivers Under Pressure: Water Trading, Transaction Costs, and Transboundary Governance in the Western USA and Australia* (Edward Elgar, 2015).

²⁰ Chapter 2, 48; see also Erin O'Donnell, 'Common Legal and Policy Factors in the Emergence of Environmental Water Managers' in C A Brebbia (ed), *Water and Society II* (WIT Press, 2013) 321.

A. Two Case Studies: South-Eastern Australia and Western USA

In Australia, the creation and operation of the EWMs is focused in the southern connected Murray-Darling Basin (comprising parts of South Australia, Victoria and New South Wales), and the state of Victoria.²¹ In the western USA, the activities of the EWMs have been concentrated in two transboundary river systems: the Columbia River Basin, and the Colorado River Basin.²² There are broad similarities between the construction of the EWMs in these locations: modern water rights, water markets, and legal rights to water for the environment.²³ The EWMs have been active in these regions for at least a decade (from the 1990s in the USA, and the 2000s in Australia).²⁴ However, these regions are also sufficiently different to generate useful comparisons, as they each have different water law frameworks²⁵ and different water market activity levels.²⁶ Each of these similarities and differences are explored in detail as part of the case studies themselves.²⁷

Examining the way that water law constructs the aquatic environment, and the form and function of the EWMs, in these two regions draws on case study methodology, in that it involves the examination of a contemporary phenomenon, in a real-life context, in which the investigator has little control over events.²⁸ However, these cases are not assessed using the positivist framework promoted by Yin. This research is an example of what Bradshaw and Stratford describe as a 'case find[ing] us':²⁹ the author has worked in the field of environmental water management since 2003, and was responsible for the

²¹ See Chapter 5, 108.

²² See Chapter 6, 149.

²³ See Chapter 2; see also, Dustin Garrick and Erin O'Donnell, 'Exploring Private Roles in Environmental Watering in Australia and the US' in Jeff Bennett (ed), *Protecting the Environment, Privately* (World Scientific Publishing, 2016) 203; D Garrick et al, 'Water Markets and Freshwater Ecosystem Services: Policy Reform and Implementation in the Columbia and Murray-Darling Basins' (2009) 69 *Ecological Economics* 366.

²⁴ Steven Malloch, *Liquid Assets: Protecting and Restoring the West's Rivers and Wetlands through Environmental Water Transactions* (Trout Unlimited, 2005); Erin O'Donnell, 'Australia's Environmental Water Holders: Who is Managing Our Environmental Water?' (2013) 28(3) *Australian Environment Review* 508.

²⁵ Chapter 2, 45; see also Chapters 5 and 6.

²⁶ See eg, Zachary Donohew, 'Property Rights and Western United States Water Markets' (2009) 53 *Australian Journal of Agricultural and Resource Economics* 85[2009]; National Water Commission, *Australian Water Markets Report 2011-12* (NWC, 2013).

²⁷ See Chapters 5 and 6.

²⁸ Robert K Yin, *Case Study Research: Design and Methods* (SAGE Publications, 4th ed, 2009).

²⁹ Matt Bradshaw and Elaine Stratford, 'Qualitative Research Design and Rigour' in Iain Hay (ed), *Qualitative Research Methods in Human Geography* (Oxford University Press, 2nd ed, 2005) 67, 70.

development of a particular EWM (the Victorian Environmental Water Holder) in 2010.³⁰ This particular example of an EWM drew the attention of the author to the specific issue of how the EWMs have the attributes of legal personality, and how they interact with other constructions of the aquatic environment in water law. These two cases were therefore selected to enable the research to answer the question of what happens when the aquatic environment is constructed as a legal person, and drew on the author's personal background of knowledge and connections in both Australia and the USA.

1. *Undertaking the Case Studies*

This thesis uses the example of the EWMs to ask: what happens when the aquatic environment is constructed as a legal person? How do the EWMs interact with their specific legal context in water law, as well as their broader legal context of environmental law?

Finding the answers to these questions is the work of the case studies, both separately and in combination. Firstly, the individual cases are examined in detail, to determine:³¹

- How the aquatic environment is constructed in water law;
- How the EWMs are created in law;
- The objectives of the EWMs: each EWM aims to improve the health of the aquatic environment, but each EWM states its objectives differently;
- The activities undertaken by the EWMs; and
- How the activities of the EWMs interact with their legal context.

The two geographic cases are then analysed jointly, to explore the implications of the multiple constructions of the aquatic environment in law, and the power of the different cultural narratives about the value of the environment. This joint analysis considers:³²

- How the EWMs are formally constructed as legal persons and the precise legal powers are different for each form;
- How the EWMs are choosing to construct themselves by the actions and beliefs of their staff, and which legal powers are considered as 'off-limits';

³⁰ Erin O'Donnell, 'Institutional Reform in Environmental Water Management: the New Victorian Environmental Water Holder' (2012) 22 *Journal of Water Law* 73.

³¹ See Chapters 5 and 6.

³² See Chapter 7.

- How the multiple constructions of the aquatic environment in water law affect the activities and operation of the EWMs, and the dominant narrative in each geographic location; and
- Evidence that other water users fear a legally powerful form of the aquatic environment, and the effects of this fear on the EWMs.

Finally, the research uses the conceptual framework to place the findings of the case studies in the broader context of environmental law, to consider the wider implications of the paradox.³³

The case studies are used as a basis for intensive investigation of a particular phenomenon: the use of the EWMs to construct the aquatic environment as a legal person. This investigation is based on an interpretative analysis of the legal context, the formal construction of the EWMs, the operation of the EWMs and the ways in which the different constructions of the environment in water law affect (and are affected by) the EWMs. Undertaking the case studies is thus dependent on two specific research methods: (1) legal analysis of the water law frameworks and the EWMs; and (2) content analysis of interviews conducted with senior staff members of the EWMs.

B. *Legal Analysis*

Interpretation of legislation and legal instruments forms the backbone of this thesis, and legal analysis has been used in four different ways.

Firstly, as described in Chapter 2, a review of the publicly available information on water rights, water markets and legal rights to water for the environment was undertaken to establish the relationship between the EWMs and their legal context.³⁴ This analysis also identified the locations of contemporary EWMs, which was used to identify the geographic regions that have been studied in greater detail as case studies. For this reason, these methods are described in detail as part of Chapter 2.

Secondly, in Chapter 3, a historical review of environmental law identified patterns based on the statutory definitions of the environment, legal mechanisms used to protect the environment, and the objectives of environmental legislation. This review supported the development of the conceptual framework, which proposed a way to group the myriad

³³ See Chapter 8.

³⁴ For more detail, see Chapter 2, 45.

definitions of the environment into three constructions of the environment in law: a socio-ecological concept, a legal object and a legal subject.³⁵

Thirdly, in Chapters 5 and 6, a detailed reading of water laws and a review of water market analysis was conducted for each case study. This enabled a deep assessment of the legal context for the EWMs of the two case studies, and was used to identify the specific ways in which the aquatic environment is constructed in water law. Each case includes a number of states as well as a federal government, each of which has its own set of water and environment laws. A close reading of the specific water laws of each relevant state (and federal) jurisdiction within each case study was conducted to confirm that each of the three constructions identified in the conceptual framework are also present in the water law frameworks of the case studies.³⁶

Fourthly, a more detailed reading of state-based legislation was conducted to identify how the EWMs themselves were created in law (including their status as legal persons), and the legal powers underpinning their various activities.³⁷ For each EWM, the following sources were reviewed:

- State water legislation;
- Other relevant state or federal legislation necessary to enable the EWM to be created and conduct its activities (such as a state-based nonprofit incorporation act);
- Other relevant legal instruments (such as the Murray-Darling Basin Plan);
- The website of the EWM (or relevant government agency); and
- Publicly available reports issued by the EWM, including annual reports, corporate plans, incorporation documents, and other relevant reports (such as water plans, water accounts, monitoring and reporting plans).

In most cases, the EWMs have been in operation for several years, so the review focused on the most recent reports available from the EWM websites. This review was also supported by access to the academic literature. Although the specific nature of the EWMs as legal persons, and their ability to represent the aquatic environment in law, has not been the focus of other scholarly efforts to date, there is a rich trove of academic

³⁵ Chapter 3, 87.

³⁶ Chapters 5 and 6.

³⁷ Chapters 5-7.

literature on the activities of the EWMs as mechanisms for recovering and managing environmental water.³⁸

These reviews of legislation, academic scholarship and publicly available material were used as the basis for determining how the EWMs are created in law (in particular, their legal form, rights and powers), and how their form and operation interacts with their legal contexts. These findings were then supplemented using interviews with senior staff of the EWMs. These interviews were of great value in developing insight into the relationship between the formal powers and objectives of the EWMs, and their operations.

C. *Interviews and Content Analysis*

There is often room for interpretation between the formal legal construction of an organisation (including its form and objectives), and the way that organisation operates in the real world. The interviews with senior staff of the EWMs bridge the gap between the form and what actually happens in reality. The long-form interviews created an opportunity to lift the veil of the organisation, and go beyond the public face to find out what the staff of the organisation really think and feel.³⁹ The interview questions were designed to help answer the specific questions used to undertake the case studies.⁴⁰

A two-staged process was used to conduct the interviews with the staff of the EWMs. The first stage was primarily a scoping study undertaken in Australia, before embarking on the second stage of interviews with a wider range of EWMs from both case studies. This first stage included interviews with three staff from the Victorian Environmental Water Holder and two staff from the Commonwealth Environmental Water Holder. Following the completion of the first stage, the interview questions were refined. Although the interview questions differed slightly between the first and second stages, the semi-structured nature of the interviews meant that this was not a significant difference. Interviewees for the second stage were selected to include staff from a range of public and private EWMs in each case study area.

³⁸ See particularly Erin O'Donnell and Dustin Garrick, 'Chapter 19: Environmental Water Organisations and Institutional Settings' in Avril Horne et al (eds), *Water For the Environment* (Elsevier, in press), Garrick and O'Donnell, above n 23, and references therein.

³⁹ Mats Alvesson, *Interpreting Interviews* (SAGE Publications, 2011).

⁴⁰ See Appendix B for a schedule of interview questions.

The interviewees had all been working within the environmental water management sector for some time, and had been in their current role (or a very similar one) for several years. Most interviewees were executive level staff, and the remainder held senior positions at the operational level within their organisation. Interviewees were given a choice on the level of anonymity. As some preferred not to be referenced by name, they are only referred to by their employer; where more than one staff member has been interviewed from a single organisation, they are distinguished by a unique number (eg, staff member 1 from the Victorian Environmental Water Holder). For a list of organisations and interview codes, see Appendix B.

Interviewees were initially sourced based on the contacts of the author. Further interviewees were sourced by snowballing (a referral based technique). All interviewees were contacted personally by the author, and provided with background to the project (a plain language statement) and a consent form (including details of who to contact if further information was required, or if the interviewee had any concerns at any point during the interview process).⁴¹ All interviewees had the opportunity to decline to participate at any point, even after the interview was conducted.

1. *Research Ethics*

Conducting these interviews ethically required an assessment of the potential risks of the research. The Melbourne Law School Human Ethics Advisory Group reviewed the proposed interview methods and issued their approvals for stage 1 (15 December 2011) and stage 2 (29 January 2013) of the research. Stage 1 was conducted as a scoping study, and stage 2 included as many of the remaining EWMs from the two case studies as feasible, given cost and time constraints. The interview questions and ethics approvals are provided in Appendix B.

The value of these long-form interviews lies in the ability of the interviewees to discuss their perspectives and opinions honestly, so the risk mitigation strategies⁴² emphasised the anonymity of the interviewees and the protection of their interview data.⁴³ All

⁴¹ See Appendix B.

⁴² Yin, above n 28, 73.

⁴³ Only adult employees were contacted and all contacts were undertaken by the researcher personally. All interviewees received a plain language statement outlining the aims of the research, how the data from their interview will be captured and stored and their capacity to consent (and withdraw consent at any time) to the interview. All interview transcripts were stored

interviewees were also offered the opportunity to choose how they would be identified in the resulting research material (including this thesis and any related reports or academic publications). As some interviewees requested that their identity remain confidential, all interviewees are only identified based on their employer.

In addition, all interviewees were cautioned that the world of environmental water management in each jurisdiction is relatively small, and that it may be possible to identify them based on their remarks in the interview. To mitigate this risk to the interviewees, all interviewees were provided with an edited interview transcript, so that they could redact any potentially identifying or confidential information (if they felt this to be of concern).

2. Interviewees

A total of eight interviews were conducted in Australia, five as part of stage 1 and the remaining three as part of stage 2. The EWMs interviewed were (with interview identifiers used in Chapters 4-8):

- Victorian Environmental Water Holder: VEW 1, VEW 2, VEW 3
 - 3 staff, including a Commissioner, an executive manager and an operations manager;
- Commonwealth Environmental Water Office: CEWO 1, CEWO 2
 - 2 staff, including a policy manager and operations manager;
- South Australia Department of Environment, Water and Natural Resources: SA DEWNR
 - 1 staff member;
- Healthy Rivers Australia: HRA
 - 1 staff member; and
- New South Wales Office of Environment and Heritage (Riverbank): OEH
 - 1 staff member.

A total of 9 interviews were conducted with 11 EWM staff in the Columbia River Basin and state of Colorado in the western USA. All interviews were undertaken as part of stage 2 of the data collection process. The EWMs interviewed were (and interview identifiers):

- Oregon Freshwater Trust: FWT
 - 2 staff as part of one interview, including a policy director and operations manager;

on a password protected computer. Examples of the plain language statement and consent form are provided in Appendix B.

- Washington Water Trust: WWT
 - 1 staff member;
- Washington State Department of Ecology: WDE 1, WDE 2
 - 3 staff members over two interviews, including a program director, a policy manager and an operations manager;
- Trout Unlimited Montana: TUM
 - 1 staff member;
- Clark Fork Coalition: CFC
 - 1 staff member;
- Colorado Water Trust: CWT
 - 1 staff member;
- Colorado Water Conservation Board: CWCBC
 - 1 staff member; and
- Deschutes River Conservancy: DRC
 - 1 staff member.

Although the National Fish and Wildlife Foundation is not an EWM under the definition developed in Chapter 3, this organisation coordinates much of the environmental water recovery work in the Columbia Basin. Accordingly, a senior staff member in charge of this program was also interviewed (identifier: NFWF). As part of scoping the case studies, two additional interviews were also conducted, with a senior staff member of the California Department of Water Resources (Cal DWR) and a former senior staff member with American Rivers (AR). These interviews provided helpful insights, which, among other things, confirmed the selection of the distinct geographic regions of the case studies.

3. *Conducting the interviews*

The interviews were semi-structured and 1-2 hours in length, depending on the availability of the interviewee. The questions were designed to demonstrate the capacity of the interviewee to discuss environmental water management in their location, and to obtain their perspectives on the creation, operation and legal context of the EWMs. The semi-structured nature of the interviews ensured that similar ground was covered with each interview subject, whilst also respecting their expertise in the field, and allowing for a natural conversational flow.⁴⁴ The schedule of interview questions that guided each interview has been included in Appendix B, but as an overview, the questions focused on:

⁴⁴ Bill Gillham, *Case Study Research Methods*, Real World Research (Continuum, 2000), 59-69.

- The interviewee's awareness of environmental water management organisations, laws and policies in their jurisdiction;
- How and why the interviewee's organisation was created and what its objectives are;
- How the interviewee's organisation makes decisions on environmental water management and who is involved;
- How the interviewee's organisation monitors and reports on the outcomes of its environmental water management decisions;
- What influence, if any, the interviewee feels their organisation's structure and legal form has on the way it operates and their level of engagement with issues relating to governance; and
- Whether the interviewee felt that their organisation acted as a representative of the environment and provided leadership in environmental water management.

The interviews were recorded as well as transcribed during the interview discussion. The transcription was checked against the recording for accuracy after the interview was conducted. All interview transcripts were also returned to the interviewees for confirmation of accuracy. In most cases, very few alterations were requested. The analysis of the interviews is based on these written documents, which remain on file.

4. *Content analysis*

Organisations cannot be sufficiently described solely by reference to their legal form, but there is an enormous difference between saying that such forms are, in principle, indefinitely negotiable and recognizing that they are, in practice, determinate... How are the legal instruments articulated with members' everyday actions in such a way as to depict them as aspects of the same phenomenon?⁴⁵

The interviews give insight into the way that the staff of the EWMs make sense of the form, function and role of the EWMs within their local contexts. The objective of collecting the interview data is to provide a richer, deeper, more nuanced interpretation of the findings that emerged from the review of legislation, academic literature, and publicly available reports, plans and websites.

The interview transcripts were entered into NVIVO 11 for the purposes of content analysis. The themes for this analysis were generated using an iterative approach, so that initial themes of interest were identified based on the legal analysis, tested in the interim

⁴⁵ Robert Dingwall and Phil M Strong, 'The Interactional Study of Organisations: a Critique and Reformulation' in Gale Miller and Robert Dingwall (eds), *Context and Method in Qualitative Research* (SAGE Publications, 1997) 139, 147.

analysis of the stage 1 interviews, and refined into a full set of themes using the stage 2 analysis. This follows Berg's requirement that 'the development of categories in any content analysis must derive from inductive reference... concerning patterns that emerge from the data',⁴⁶ and ensures that the themes are 'grounded in the data' from which they have emerged. Table 7 presents the 'nodes' (themes) that were coded into NVIVO 11 for the analysis of the interview data.

Table 7 Themes for content analysis (as listed in NVIVO 11)

Node	Sub-nodes
Accountability	External; Internal; Transparency
Community	
Efficiency and effectiveness	Capacity Building; Transaction Costs
Environment and market	
Environmental value	Dollar Value; Use Value; Inherent Value
Environmental water activities	Acquire Water; Advocacy; Brokerage; Delivery Partnership; Funding; Instream Flows; Legal Access to Water; Manage Water; Monitoring Outcomes; Negotiation; Offstream Flows; Other River Restoration Works; Own Environmental Water; Physical Metering and Monitoring; Planning and Prioritization; Reporting; Trade Water; Water Delivery and Complementary Works
EWM legal form	
Funding	Competition; Self-Funding; Funding Source; Negotiation; Time Limits
Governance	
Identity	
Independence	
Influence	
Innovation	
Just another user	
Leadership	
Legitimacy	Input Legitimacy; Output Legitimacy; Trust
Objectives	Community Engagement; Environmental Flows; Innovation; Other; River Restoration; Use of Environment
Origins of EWM	
Partnership	Community Engagement; Competition; Legal Requirement; Roles and Responsibilities; Water Users
Power	
Representation	Aquatic Environment; Users of Environment; Voice
Water policy	
Water transactions	

As described by Berg, this list of themes was refined until saturation point was reached, when the interview data was able to be coded quickly.⁴⁷

⁴⁶ Bruce L Berg, *Qualitative Research Methods for the Social Sciences* (Allyn and Bacon, 3rd ed, 1998), 234.

⁴⁷ Ibid, 236-238.

D. *Using the different data sources*

The case studies are undertaken using an inductive, interpretative approach based on qualitative data. This method is rooted in the interpretation of the law to identify and describe:

- 1) The construction of the aquatic environment in the water law frameworks of each case study;
- 2) The legal form of the EWMs; and
- 3) The specific powers of legal personhood that attach to each EWM.

Although these findings are supported by specific and identified laws and legal instruments, they are contingent on the interpretation of those laws by the author. To support this interpretation, publicly available material has been used to identify the ‘facts’ of environmental water recovery and management, based on the reports, plans and websites of the EWMs and other relevant government agencies. These sources have been used to identify how much environmental water has been recovered (a volumetric measure), the methods of recovery (as reported by the EWMs) and the ongoing activities of the EWMs (to acquire and manage water for the environment).

The interviews have been used to enrich the results of the legal analysis and the review of public reports, and gain insight into the way that the EWM staff describe and make sense of:

- 1) The objectives and activities of the EWMs;
- 2) The role of the EWMs within their local communities; and
- 3) The relationship between the activities of the EWM and their legal form and context.

The interviews have also been used to identify the dominant narrative underpinning the particular role of the EWMs in each case study, and to explore the tension between competing narratives about the construction of the aquatic environment in law.⁴⁸

Using the interviews in this way requires what Alvesson called a ‘mixed position’ on interview interpretation.⁴⁹ On the one hand, the structured nature of the interviews, with their reliance on short questions and long answers, the content analysis with its

⁴⁸ See analysis in Chapters 5-7; see also the discussion of the role of narrative, Chapter 3, 82.

⁴⁹ Alvesson, above n 39, 21.

emphasis on detailed coding and large quantities of material, and the capacity of interviewees to provide feedback on the interview transcripts indicates an 'interactive rationalist' approach to the interview data. The interviews are considered to 'accurately reflect the experiences and/or observations of interviewees', at least from the perspective of the interviewees.⁵⁰ However, the interview data is primarily relied on to understand the 'ideas, values [and] understandings of practices'⁵¹ of the staff of the EWMs, and the interviews were conducted using a conversational style, diverging from the set interview questions as needed to follow the flow of the conversation. This 'romantic' approach yields 'deeper, fuller conceptualisations'⁵² and greater understanding than the interactive rationalist approach. The interviews were all conducted by the author, who is known to many of the interviewees as a professional colleague, and relied on the building and maintaining of trust, further aligning with the romantic approach.

The interviews have been relied on as sources of data to enrich the legal and textual analysis of the EWMs. Whilst the ability of interviews to present authentic data should always be scrutinised,⁵³ these interviews can be relied on as a source of each individual interviewee's description of their understanding of events, processes and values.

III. CONCLUSION

Two major objectives of qualitative research are to describe and analyse both the processes through which social realities are constructed, and the social relationships through which people are connected to one another. It is within, and through, these relationships and processes that organisations, institutions, culture and society emerge and are sustained.⁵⁴

This chapter detailed the methods used to conduct the intensive analysis of the creation and operation of EWMs in the two distinct geographic locations and legal jurisdictions of south-eastern Australia and the western USA. These methods combine legal analysis and long-form interviews with senior staff of the EWMs to provide a nuanced perspective of the role of the EWMs within their specific legal and social contexts.

⁵⁰ Ibid, 13.

⁵¹ Ibid, 14.

⁵² J Miller and B Glassner, 'The "Inside" and the "Outside": Finding Realities in Interviews' in David Silverman (ed), *Qualitative Research* (SAGE Publications, 1997) 99, 103.

⁵³ David Silverman, *Interpreting Qualitative Data* (SAGE Publications, 2006).

⁵⁴ Miller and Dingwall, above n 18, 3.

The interviews, in particular, are a significant contribution to the existing analysis of EWMs, because they connect the legal form to the ‘members’ everyday actions’,⁵⁵ and support a richer analysis of the interactive relationship between EWMs and their legal and social context. In particular, the interviews elicit unique insights from the EWM staff on the role of the EWMs, and how this role relates to the dominant cultural narratives and regulatory responses described in Chapter 3. In Australia, the EWMs have explicitly adopted the role of being ‘just another user’⁵⁶ of water, whereas in the USA, the EWMs focus on creating ‘an environment of collaboration’.⁵⁷ These distinctions emerge clearly in the interview data, but are much less apparent in the legal instruments or publicly available reports.

In conclusion, this chapter demonstrated:

- The importance of the case studies in helping to answer the research questions;
- The link between the literature reviews and legal analysis undertaken in Chapters 2 and 3, and the specific case studies in Chapters 5 and 6; and
- The detailed methods used to undertake the legal analysis, conduct the interviews and complete the content analysis of interview data, demonstrating the rigour with which this research has been conducted.

The next two chapters report on the findings of each of the case studies, beginning with south-eastern Australia.

⁵⁵ Dingwall and Strong, above n 45, 147.

⁵⁶ Interview CEWO 1.

⁵⁷ Interview DRC.

Chapter 5

Water Law and the EWMs of South-Eastern Australia (case study 1)

I. INTRODUCTION

A defining feature of environmental water holders as they presently exist is that for the most part these entities manage entitlements that have the same characteristics as similar entitlements used for irrigated agriculture. This means that the property right remains transferable, thereby maintaining its value, and positions the environment as a legitimate user of the resource with the same rights and obligations as other users.¹

The environmental water managers (EWMs) of south-eastern Australia are organisations which have been created to acquire and manage water rights² on behalf of the aquatic environment in the Murray-Darling Basin (MDB) and southern Victoria. In this region, the problem of providing sufficient water to the environment occurs in the context of highly variable water quantity within and between years (which most often produces water scarcity) and the water markets of the MDB. The EWMs of this region use their legal rights and powers to hold water rights, participate in water markets and use water to achieve environmental outcomes.

This chapter is the first of two case studies, and answers the sub-question: how is the aquatic environment constructed in water law?³ To do so, it analyses the EWMs of south-eastern Australia and the legal frameworks in which they operate in detail. This chapter shows that, in the 1980s and 1990s, the aquatic environment was recognized in water law as an important part of sustainable resource management,⁴ and, more rarely, as a specific iconic location considered worthy of protection.⁵ Next, the aquatic

¹ Benjamin Docker, 'Discussion paper Topic 1: Structural Issues and the "Big Picture": What Institutional Mechanisms and Legal Status Can and Should We Provide for Environmental Water as a "Partner" in Water Use?' (Paper presented at the Mainstreaming Environmental Water Law and Policy Workshop, Melbourne Law School, Centre for Energy, Resources and Environment Law, 2013, <<http://law.unimelb.edu.au/centres/creel/research/workshops>>), 2.

² Australian water law differentiates between environmental water that is held as a water right, and environmental water that is set aside based on limits imposed on other users' water rights. The EWMs in south-eastern Australia only focus on the former.

³ Chapter 1, 7.

⁴ See *Water Act 1989* (Vic) s 1, especially subsections (b), (d), (j) and (k); and for a more recent example, the *Water Act 2007* (Cth) s 3(c).

⁵ Eg, *Heritage Rivers Act 1992* (Vic).

environment was translated into a legal object, to be protected by limiting others' access to water, by, for example, setting a cap on water extractions.⁶ Only since 2005 has the aquatic environment been a legal subject, and represented by EWMs able to acquire and hold water rights for the environment.⁷

Secondly, this chapter examines the creation and operation of the EWMs, by undertaking a detailed legal analysis of their legal forms and powers. This analysis is extended and supported by an examination of their operations (based on their publicly available material, such as reports and web pages) and detailed interviews with senior staff.⁸ Whilst the EWMs are a legal creation, their operation is a distinctly human endeavour, shaped by the perceptions and beliefs of the EWM employees. These interviews give a much more nuanced insight into the operation of the EWMs than is available via the legislation or the publicly available material. Thus, the analysis of the EWMs is grounded in the specifics of their legal powers and their actual activities in environmental water management.

II. WATER LAW AND THE AQUATIC ENVIRONMENT IN SOUTH-EASTERN AUSTRALIA

The EWMs of south-eastern Australia are embedded within water law frameworks that operate at the state and national levels within the federation of Australia.⁹ Before examining the ways in which water law has constructed the aquatic environment in this jurisdiction, it is necessary to specify what is meant by south-eastern Australia.

The Commonwealth of Australia has its own EWMs (the Commonwealth Environmental Water Holder and the Murray-Darling Basin Authority).¹⁰ So far, the federal EWMs have operated almost exclusively within the Murray-Darling Basin (MDB), although the Commonwealth Environmental Water Holder (CEWH) has the legal capacity to operate in locations outside the MDB, where necessary to give effect to Australia's international

⁶ See, eg, *Water Act 2007* (Cth) s 22 (item 6) and s 23.

⁷ Erin O'Donnell, 'Australia's Environmental Water Holders: Who is Managing Our Environmental Water?' (2013) 28(3) *Australian Environment Review* 508.

⁸ Chapter 4.

⁹ Alex Gardner, Richard Bartlett and Janice Gray, *Water Resources Law* (Lexisnexis Butterworths, 2009).

¹⁰ National Water Commission, *Australian Environmental Water Management: 2012 review* (Commonwealth of Australia, 2012) ('*Australian Environmental Water 2012*').

agreements.¹¹ There are also state EWMs operating within the states of South Australia, Victoria and New South Wales, and the operations of the Victorian Environmental Water Holder (VEWH) extend beyond the MDB.¹²

This thesis is interested in the specific jurisdictions in which the EWMs are operating, so the area of interest is Victoria (Figure 2)¹³ and the MDB (Figure 3).¹⁴



Figure 2 River systems in Victoria in which the VEWH operates

¹¹ *Water Act 2007* (Cth), s 105(3).

¹² See Table 4, 48; see also *Australian Environmental Water 2012*, above n 10.

¹³ Figure obtained from Victorian Environmental Water Holder, *Reflections: Environmental Watering in Victoria 2015-16* (State Government of Victoria, 2016), 8.

¹⁴ This image obtained from ABC Rural, *Murray Darling Basin Plan* (online) 11 March 2016 <<http://www.abc.net.au/news/rural/specials/murray-darling-basin-plan/>>.



Figure 3 The Murray-Darling Basin

A. *Water Law in South-Eastern Australia*

Australia's water laws have their origins in riparian rights, but have transitioned to a statutory regime, in response to the need to manage highly variable water supplies.¹⁵ Australia's water resource management framework emphasises coordinated, state-based planning schemes that aim to manage water resources sustainably and reliably over time, in a highly variable climate.¹⁶ Competition reforms in the 1980s led an additional

¹⁵ Anthony Scott, *The Evolution of Resource Property Rights* (Oxford University Press, 2008), 116; Jennifer McKay, 'The Legal Frameworks of Australian Water: Progression from Common Law Rights to Sustainable Shares' in Lin Crase (ed), *Water Policy in Australia: The Impact of Change and Uncertainty* (Resources For the Future, 2008) 44; most water statutes retain the riparian right to access water flowing directly past one's land for domestic and stock purposes.

¹⁶ Michael Cathcart, *The Water Dreamers: the remarkable history of our dry continent* (The Text Publishing Company, 2009); Lin Crase, 'An Introduction to Australian Water Policy' in Lin Crase (ed), *Water Policy in Australia: The Impact of Change and Uncertainty* (Resources for the Future, 2008) 1; McKay, above n 15.

emphasis on efficiency,¹⁷ by supporting the development of cap and trade water markets which are now recognized as some of the most active in the world.¹⁸

All states and territories have passed their own water legislation that vests the right to control and use water in the Crown.¹⁹ However, there has also been a long history of joint management of the MDB, which has been jointly managed by state and federal governments since 1915.²⁰ In 1994, in response to sustained growth in water extractions (and significant environmental decline) in the MDB, the basin states and the federal government entered new formal agreement.²¹ As part of various broad commitments to water reform, this intergovernmental agreement enabled a cap to be imposed on water extractions from the MDB, which was set in 1995.²² In 2004, a second intergovernmental agreement established the National Water Initiative (NWI), which included substantial Commonwealth funding incentives for the implementation of water reform. The NWI required the states to develop clearer and more secure legal rights to water that were transferable separate to land, support the creation and operation of water markets, and create legal rights to water for the environment.²³

In 2007, in response to an extreme and on-going drought across south-eastern Australia, as well as a 'perceived lack of co-operation between state governments',²⁴ the basin states agreed to refer some of their powers to the Commonwealth of Australia in exchange for substantial Commonwealth investment in water infrastructure and water recovery for the environment. The *Water Act 2007* gave the Commonwealth a much more substantial role in water resource management, particularly in the MDB. Under this legislation, the Murray-Darling Basin Plan was passed in 2012, which aimed to streamline water resource

¹⁷ Commonwealth of Australia, *National Competition Policy Review (The Hilmer Report)* (Australian Government Publishing Service, 1993).

¹⁸ R. Quentin Grafton et al, 'An Integrated Assessment of Water Markets: A Cross-Country Comparison' (2011) 5(2) *Review of Environmental Economics and Policy* 219.

¹⁹ See, for example, *Water Act 1989* (Vic), *Water Management Act 2000* (NSW), *Water Act 2000* (Qld), *Natural Resources Management Act 2004* (SA), *Rights in Water and Irrigation Act 1914* (WA), *Water Act* (NT) and *Water Management Act 1999* (Tas).

²⁰ Daniel Connell, *Water Politics in the Murray-Darling Basin* (The Federation Press, 2007).

²¹ COAG, *Communiqué - Water Reform Framework* (Council of Australian Governments, 1994).

²² Murray-Darling Basin Commission, *Murray-Darling Basin Cap on Diversions Water Year 1997/98: Striking the Balance* (Murray-Darling Basin Commission, 1998), ('*Striking the Balance*').

²³ COAG, *Intergovernmental Agreement on a National Water Initiative* (Council of Australian Governments, 2004) ('*National Water Initiative*').

²⁴ Maureen Papas, 'The Proposed Governance Framework for the Murray-Darling Basin' (2007) 4(2) *Macquarie Journal of International and Comparative Environmental Law* 77, 77.

management in the MDB and lower the existing cap on water extractions, and allocate more water to the environment.²⁵ However, the states continue to retain their own legal frameworks, and remain responsible for defining water rights and implementing water resource management plans.²⁶ These plans are the basis on which water is allocated between users within a specific geographic area, and the rules that regulate this process.²⁷

Within this complex multi-jurisdictional water law framework, water rights in Australia are largely segregated by use (eg, rural or urban)²⁸ and water source (eg, surface water or groundwater). Individuals and industries in urban areas have different rights to water than those in irrigation districts; for example, urban rights are typically not transferable at the individual level, whereas individual irrigator water rights are often traded. As a result, the water markets are located in the rural irrigation districts.²⁹

Within irrigation districts, the legal nature of rights to water differs if water is held in storage (such as dams and weirs) or is accessible as run-of-river flow. Where water is held in storage, water rights have been ‘unbundled’: the bundle of rights has been separated into different components to stimulate water trade.³⁰ These water rights have been separated into a ‘water access licence’, which defines the right to receive water in storage, and exists in perpetuity; and a water allocation, which is the physical volume of water available for use (as share of the water access entitlement), as well as delivery and use licences.³¹ Each of these entitlements can be held separately or together. Each state has defined these differently, so for example, in Victoria, this translates into a water share (the water access licence), a water allocation, and two rights that remain attached to the land: a delivery share (a share of delivery capacity linked to an annual fee to maintain access to delivery infrastructure) and a water-use registration (a licence to use

²⁵ Murray-Darling Basin Authority, *Murray-Darling Basin Plan* (Commonwealth of Australia, 2012) (*‘Murray-Darling Basin Plan’*).

²⁶ COAG Communique 3 July 2008 *Intergovernmental Agreement on Murray-Darling Basin Reform*, (online) 20 July 2011 <http://www.coag.gov.au/coag_meeting_outcomes/2008-07-03/index.cfm#water>.

²⁷ *Australian Environmental Water* 2012, above n 10.

²⁸ For example, the Victorian *Water Act 1989* establishes districts for the provision of specific water services, such as irrigation, urban water supply, drainage, and sewerage.

²⁹ Water markets are discussed in greater detail at 113.

³⁰ National Water Commission, *Australian Water Markets Report 2011-12* (NWC, 2013), figure 2.2 (*‘Australian Water Markets 2011-12’*).

³¹ Gardner, Bartlett and Gray, above n 9, see also *Australian Water Markets 2011-12*, above n 30, 21-24.

water at a particular location).³² Similar divisions in water rights have occurred in South Australia, New South Wales and Queensland.³³

In regions where water is available as run-of-river flow ('unregulated' rivers) or as groundwater, unbundling is not yet complete and water rights are held as licences.³⁴ These licences are highly context-specific – it relates to a particular location and has specific conditions attached to it, and thus, the collective licences are highly heterogeneous. For this reason, although licences can be transferred separately from land, trades in these licences usually represent personal dealings between land owners, and transferred licences are re-attached to a specific land parcel.³⁵

In this thesis, 'water rights' in the Australian context refers to the unbundled water access entitlements and water allocations available in irrigation districts in the MDB and southern Victoria.

These water rights are traded in water markets, which are used to allocate limited and highly variable water supplies between different uses in response to changing water demands. They are intended to improve efficiency of water use within sustainable limits imposed by the cap on water use.³⁶ The next section explores the water markets of south-eastern Australia.

1. *Water Markets in South-Eastern Australia*

Australia is recognised as a world leader in the implementation of water markets.³⁷ A review of water markets in Australia, Chile, the western USA, China and South Africa found that Australia's water markets scored highly on institutional foundations and

³² *Water Act 1989* (Vic) ss 33E, 33F, 33U, 33AC, 33AL, 64J, 223.

³³ *Water Management Act 2000* (NSW), s56; *Water Act 2000* (Qld), ss 121, 122, 128, 128A-B; *Natural Resources Management Act 2004* (SA), ss 146-158, 164A. Partial unbundling has occurred in other states, see: *Rights in Water and Irrigation Act 1914* (WA), s5C; *Water Management Act 1999* (Tas), ss 56, 84.

³⁴ See, eg, *Water Act 1989* (Vic), s 51.

³⁵ Additional regulations may also be specified by the water corporation responsible for assessing the proposed trade; for more details on the situation in Victoria, for example, see Agriculture Victoria, *Trading Licences* (11 November 2015) <<http://agriculture.vic.gov.au/agriculture/farm-management/soil-and-water/water/farm-water-solutions/technical-resources/trading-water-licences>>.

³⁶ Janice Gray, 'The Legal Framework for Water Trading in the Murray-Darling Basin: an Overwhelming Success?' (2012) 29 *Environmental and Planning Law Journal* 328.

³⁷ Lee Godden, 'Governing Common Resources: Environmental Markets and Property in Water' in Aileen McHarg et al (eds), *Property and the Law in Energy and Natural Resources* (Oxford University Press, 2010) 413.

economic efficiency.³⁸ The total value of gross water sales (entitlement and allocation) in Australia was \$3 billion in 2009-10,³⁹ most of which occurred in the MDB. Water trading is also an effective way to mitigate drought impacts, and support agricultural development in the southern connected MDB.⁴⁰ Australia's water markets exemplify Tan's four market fundamentals:⁴¹ (1) many buyers and sellers; (2) mobile resources; (3) reliable and adequate information and (4) well-defined, homogenous⁴² rights.⁴³

Australia's water markets have emerged in response to water scarcity and variability, and the desire to support continued growth of water-dependent industries within a sustainable limit on water extraction (the cap). In 1994, the Murray-Darling Basin cap was imposed to protect the existing reliability of supply for water users, as well as limiting further decline in the aquatic environment.⁴⁴ The cap thus reflected physical scarcity (there was a finite volume of water available each year) and manufactured scarcity (by capping water extractions before reaching that limit, to preserve water for the environment). Significant increase in market trade volumes occurred in 2007, in response to the severe water scarcity of the Millennium Drought.⁴⁵

At present, Australia has active water markets throughout the MDB and in adjacent areas in Victoria.⁴⁶ The interconnected nature of the Murray-Darling river system meant that water stored in the upper catchment of the River Murray and its tributaries (such as

³⁸ See Grafton et al, above n 18; environmental sustainability was not assessed in Australia due to the incipient release of the Murray-Darling Basin Plan.

³⁹ National Water Commission, *Australian Water Markets Report 2009-2010* (National Water Commission, 2010), 31 ('*Australian Water Markets 2009-2010*').

⁴⁰ Frontier Economics, *The Economic and Social Impacts of Water Trading: Case Studies in the Victorian Murray Valley* (Rural Industries Research and Development Corporation, 2007); National Water Commission, *The Impacts of Water Trading in the Southern Murray-Darling Basin: An Economic, Social and Environmental Assessment* (National Water Commission, 2010) ('*Impacts of Water Trading in the Southern MDB*').

⁴¹ Poh-Ling Tan, 'A Property Framework for Water Markets: The Role of Law' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar, 2005) 56.

⁴² Although the state-based water rights are not all identical, there are limited classes of water rights and large numbers within each class.

⁴³ See also Grafton et al, above n 18; John Freebairn, 'Principles and Issues for Effective Australian Water Markets' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar, 2005) 8; D E Fisher, 'Markets, Water Rights and Sustainable Development' (2006) 23 *Environmental and Planning Law Journal* 100.

⁴⁴ Murray-Darling Basin Commission, *An Audit of Water Use in the Murray-Darling Basin: June 1995* (Murray-Darling Basin Commission, 1995); *Striking the Balance*, above n 22.

⁴⁵ *Australian Water Markets 2009-2010*, above n 39; *Impacts of Water Trading in the Southern MDB*, above n 40; *Australian Water Markets 2011-12*, above n 30.

⁴⁶ National Water Commission, *Australian Water Markets: Trends and Drivers 2007-08 to 2012-13* (National Water Commission, 2014) ('*Australian Water Markets: Trends and Drivers*').

the Murrumbidgee and the Goulburn rivers) could be used almost anywhere downstream (see Figure 3), supporting trade throughout the southern-connected MDB.⁴⁷

In 2010, there were four principal mechanisms for exchange,⁴⁸ three operated by irrigation groups or water corporations, and one by the national stock exchange of Australia; all of which operated within the MDB. All jurisdictions have publicly accessible water registers that record ownership, transfers and mortgages of all water entitlements; in states with highly active water markets, these registers are available online.⁴⁹

The impacts of the creation and operation of water markets on the aquatic environment remains highly contested.⁵⁰ This thesis is not an attempt to assess whether the water markets have delivered a sustainable water resource management framework, but rather to consider the operation of the EWMs within the water markets. Much existing scholarship is focused on attempting to quantitatively assess the effect of the water markets per se on the environment, but so far, scholars have overlooked the contribution of water markets to the way that the aquatic environment is constructed in law. In Australia, water rights held by other users can be transferred to the environment, and in most cases, this transfer is achieved via water trade. The nature of water as a shared resource market helps to highlight the multiple constructions of the aquatic environment within Australian water law.⁵¹

B. *Constructing the Aquatic Environment in Australian Water Law*

At the most basic level, there are two types of water use recognized by Australian water law: consumptive use, in which water is used by private users (usually, but not always, by extracting it from the river); and environmental use, when the water remains in rivers, lakes, wetlands and estuaries to maintain the health of the aquatic environment.⁵² Environmental water was defined by the National Water Commission as: 'the water

⁴⁷ Ibid.

⁴⁸ *Australian Water Markets 2009-2010*, above n 39, 23.

⁴⁹ The following states have online, publicly accessible registers: Victoria, New South Wales, South Australia and Queensland.

⁵⁰ Gray, above n 36.

⁵¹ Chapter 3, 79.

⁵² A Horne, J Freebairn and E O'Donnell, 'Establishment of Environmental Water in the Murray-Darling Basin - an Analysis of Two Key Policy Initiatives' (2011) 15(1) *Australian Journal of Water Resources* 7, 9-10.

regime provided to achieve environmental objectives', including maintaining ecosystem function, biodiversity, water quality and river health targets.⁵³

In Australian water law, environmental water is created in three ways:

- 1) by legislation, as water set aside for environmental purposes through a range of mechanisms, but with no mention of the volumes or locations of this water;⁵⁴
- 2) by specific rules for river operators or obligations on consumptive water users, often referred to as *planned environmental water*;⁵⁵ and
- 3) by individual water entitlements, including those that have been acquired from consumptive users as well as those specifically created for environmental use,⁵⁶ now referred to as *held environmental water*.⁵⁷

In addition to creating environmental water, the water law frameworks in south-eastern Australia also explicitly *recognize* the aquatic environment as an important element of sustainable water management, and they have also *translated* the aquatic environment into a legal object by placing limits on others' use of water. Most recently, with creation of specific environmental water rights and the EWMs as legal persons who hold such water rights, water law has *personified* the aquatic environment.⁵⁸ The following sections explore these three constructions of the aquatic environment within water law.

1. *Recognition of the Aquatic Environment in Water Law*

The water laws of south-eastern Australia typically recognize the aquatic environment as a *socio-ecological concept* in the objectives or purposes of the legislation, as well as specifically defining elements of the environment.⁵⁹ In south-eastern Australia, the oldest water statute still in operation (although repeatedly amended) is Victoria's *Water Act 1989*, which constructs the environment as essentially aquatic, and as something that supports a range of social and ecological uses. The purposes of this legislation include

⁵³ National Water Commission, *Australian Environmental Water Management Report 2010* (National Water Commission, 2010), 8-12; see also definition of aquatic ecosystems, Chapter 1, 13.

⁵⁴ For example, see *Water Act 1989* (Vic) ss 4A, 4B; *Water Management Act 2000* (NSW) s 8; *Water Act 2007* (Cth) ss 4, 6.

⁵⁵ *Water Management Act 2000* (NSW) s 8; *Water Act 2007* (Cth) s 6.

⁵⁶ For example, environmental entitlements in Victoria, see *Water Act 1989* ss 48A-48PA.

⁵⁷ See list of entitlements in *Water Act 2007* (Cth) s 4, definition of held environmental water.

⁵⁸ See conceptual framework, Chapter 3, 87.

⁵⁹ For example, see discussion in Anita Foerster, 'Victoria's New Environmental Water Reserve: What's in a Name?' (2007) 11(2) *Australasian Journal of Natural Resources Law and Policy* 145.

the provision of 'formal means for the protection and enhancement of the environmental qualities of waterways and their in-stream uses'.⁶⁰ The instream uses of water are defined as:

- (a) the maintenance of aquatic, riparian, floodplain and wetland ecosystems; and
- (b) the maintenance of aesthetic, scientific and cultural values; and
- (c) water-based recreational activities; and
- (d) fishing for commercial purposes; and
- (e) the maintenance of water quality; and (f) navigation.⁶¹

Legislation in Queensland, South Australia and New South Wales is more recent, and includes explicit support for the principles of ecological sustainable development.⁶² In Queensland, the statute also includes specific objectives for the administration of the Act based on sustainable management of water resources, which 'protects the biological diversity and health of natural ecosystems',⁶³ in addition to other requirements. The environment in this case is one factor among many to be considered as part of sustainable water management.

New South Wales, on the other hand, appears to limit the aquatic environment to ecosystems associated with water sources, and also explicitly recognizes that benefits to the environment are part of the 'the significant social and economic benefits to the State that result from the sustainable and efficient use of water'.⁶⁴ The New South Wales statute includes a set of water management principles to guide the administration of the Act, including that:

- a) water sources, floodplains and dependent ecosystems (including groundwater and wetlands) should be protected and restored and, where possible, land should not be degraded, and
- (b) habitats, animals and plants that benefit from water or are potentially affected by managed activities should be protected and (in the case of habitats) restored, and
- (c) the water quality of all water sources should be protected and, wherever possible, enhanced, and

⁶⁰ *Water Act 1989* (Vic) s 1.

⁶¹ *Water Act 1989* (Vic) s 3.

⁶² *Water Act 2000* (Qld) s 11; *Natural Resources Management Act 2004* (SA) s 7; *Water Management Act 2000* (NSW) s 3.

⁶³ *Water Act 2000* (Qld) s 10(2).

⁶⁴ *Water Management Act 2000* (NSW) s 3.

(d) the cumulative impacts of water management licences and approvals and other activities on water sources and their dependent ecosystems, should be considered and minimized.⁶⁵

The most recent water statute in Australia is the Commonwealth *Water Act 2007*. The purposes of this legislation are significantly narrower than the state statutes, reflecting the narrower constitutional remit of the Commonwealth to legislate on water resource management.⁶⁶ This statute aims to return water extraction to:

environmentally sustainable levels... [and] to protect, restore and provide for the ecological values and ecosystem services of the Murray Darling Basin (taking into account, in particular, the impact that the taking of water has on the watercourses, lakes, wetlands, ground water and water dependent ecosystems that are part of the Basin water resources and on associated biodiversity).⁶⁷

This statute is explicitly concerned with water dependent ecosystems,⁶⁸ and defines the environmentally sustainable level of water extraction as:

the level at which water can be taken from that water resource which, if exceeded, would compromise: (a) key environmental assets of the water resource; or (b) key ecosystem functions of the water resource; or (c) the productive base of the water resource; or (d) key environmental outcomes for the water resource.⁶⁹

Interestingly, environmental outcomes, in addition to including ecosystem function and biodiversity, also include water resource health and water quality.⁷⁰ The construction of the environment in the Commonwealth statute exhibits some of the tensions discussed in Chapter 3: it is both broad (including the resources as well as the biodiversity) and narrow (by focusing on water dependent ecosystems only). This environment is both special (with the legislation's focus on the biodiversity of the iconic Murray-Darling River system) and commonplace (as it includes the necessary water quality and quantity to support commercial use). Again, the aquatic environment is constructed as one factor among several to be optimized in the management of the Basin water resources.⁷¹

2. *Translating the Aquatic Environment into a Legal Object*

Australia's water laws have translated the environment into a legal object in two distinct ways. Firstly, the legislation seeks to protect the environment through placing limits on

⁶⁵ *Water Management Act 2000* (NSW) s 5.

⁶⁶ Gardner, Bartlett and Gray, above n 9, chapter 5; see also John M Williams and Adam Webster, 'Section 100 and State Water Rights' (2010) 21-284 *Public Law Review* 267.

⁶⁷ *Water Act 2007* (Cth) s 3.

⁶⁸ *Water Act 2007* (Cth) s 4.

⁶⁹ *Water Act 2007* (Cth) s 4.

⁷⁰ *Water Act 2007* (Cth) s 4.

⁷¹ *Water Act 2007* (Cth) s 3.

the actions of others, primarily by limiting the water available for consumptive use.⁷² The Commonwealth *Water Act 2007* achieves this by setting sustainable diversion limits, which aim to limit water extraction to a sustainable level, based on (among other things), the impact to the environment.⁷³

Secondly, under legislation in Victoria, New South Wales and the Commonwealth, environmental water itself is explicitly identified and protected.⁷⁴ As described above, this environmental water can be planned or held, depending on the way in which the water is set aside for the environment. Whilst held water depends on clear and unambiguous water rights for the environment (see below), planned water is merely the water left behind after there have been limits placed on the extraction activities of other users. The most common mechanisms for the legal establishment of planned environmental water include a cap on total water extractions; the requirement to release a minimum environmental flow from a storage; and a condition on a licence that requires a water user to cease pumping from a river when flows fall below a certain level.⁷⁵ Although such water is clearly intended to be part of the water available to the environment, and is often the vast majority of available environmental water,⁷⁶ it is not a legal right in itself. The aquatic environment is only obliquely visible to water law, through the lens of the legal rights of others.

Ultimately, the same is true even when the legislation defines 'environmental water', as a legal right is only created where that water is held as a water access licence (or similar form of legal entitlement). The situation is slightly different in Victoria, where the environmental water reserve (EWR) is an attempt to bring together all the various forms of environmental water under one legal umbrella.⁷⁷ However, the EWR also does not

⁷² See, eg, *Water Act 1989* (Vic) ss 22C, 22J, 33J and s40; *Water Management Act 2000* (NSW) ss 20, 21, 23; *Water Act 2000* (Qld) s 47; *Natural Resource Management Act 2004* (SA) s 76.

⁷³ *Water Act 2007* (Cth) ss 20, 22, 23.

⁷⁴ *Water Act 1989* (Vic) ss 4A, 4B; *Water Management Act 2000* (NSW) s 8; *Water Act 2007* (Cth) ss 4, 6.

⁷⁵ Avril Horne, Erin O'Donnell and Rebecca Tharme, 'Chapter 17: Mechanisms for Allocating Environmental Water' in Avril Horne et al (eds), *Water For the Environment* (Elsevier, in press).

⁷⁶ Department of Sustainability and Environment (Vic), *Northern Region Sustainable Water Strategy* (State of Victoria, 2009), chapter 2 ('*Northern Region Sustainable Water Strategy*').

⁷⁷ *Water Act 1989* (Vic) ss 4A, 4B.

create any additional legal rights to water, and has simply expanded the construction of the aquatic environment as a legal object.⁷⁸

Australian water law is also peculiarly isolated from the broader protections of environmental law.⁷⁹ Although the water statutes refer to environmental impact assessment and planning laws when new developments are proposed (such as the constructions of new storages or pipelines), the use of water available under existing water rights is generally not an action that triggers further assessment or review outside of the water law framework.⁸⁰ The aquatic environment is almost solely constructed in water law, and interpreted by water lawyers and resource managers, within the paradigm of water resource management, which has focused on managing the extraction and use of water from various sources for consumptive purposes.

As Chapter 3 demonstrated, the construction of the aquatic environment as a legal object is legally weak, and dependent on the continued support of communities and governments to take action to protect it. Although Australian water law has constructed an alternate, more powerful version of the environment by creating significant legal rights for the environment and organisations to represent the environment (see below), the environment as a legal object remains dependent on protection, and is significantly isolated in the water law context.

3. *Legal Rights and Personhood for the Aquatic Environment*

As environmental water policies moved beyond protection and into recovery of additional water, the legal nature of those rights, and the need to afford them the same level of legal protection as other users' rights, meant that the water law frameworks now included water rights for the environment itself.⁸¹ Once such rights were established, an organisation with the attributes of legal personality was required to hold the rights on behalf of the aquatic environment.

⁷⁸ Foerster, above n 59; Lee Godden, 'Water Law Reform in Australia and South Africa: Sustainability, Efficiency and Social Justice' (2005) 17 *Journal of Environmental Law* 181.

⁷⁹ Michael Bennett and Alex Gardner, 'How do Environmental Conservation Laws Interact With Environmental Aspects of Water Laws?' (2014) 31(3) *Environmental and Planning Law Journal* 3.

⁸⁰ See *Environment Protection and Biodiversity Conservation Act 1999* (Cth) ss 43A, 43B, 345(2). This is starkly different to the situation in the western USA (Chapter 6).

⁸¹ Chapter 2, 37.

Large scale environmental water recovery in the MDB⁸² began with The Living Murray First Step in 2002, which recovered 500 gigalitres (GL) for six icon sites.⁸³ In 2004, this was followed by the National Water Initiative, which committed to legal recognition of environmental water and additional investment in water recovery.⁸⁴ In 2007, the Commonwealth committed to setting a new limit on the volume of water available for consumptive use (the sustainable diversion limit).⁸⁵ The Murray-Darling Basin Plan⁸⁶ was adopted by the Commonwealth Government in November 2012, and lowered the cap to increase water for water for the environment by 2750 GL by 2019, along with a further 450 GL by 2024.⁸⁷ This is an unprecedented volume of environmental water in Australia, and this volume is further increased by additional recovered environmental water outside the MDB.⁸⁸ The largest investor in water recovery for the environment has been the Commonwealth government, with \$AUD5.8 billion to water efficiency projects and \$AUD3.1 billion to purchase water rights for the environment,⁸⁹ but state governments and non-government organisations have also invested substantially.⁹⁰

⁸² Although a number of environmental water rights were allocated earlier, including *Bulk Entitlement (River Murray – Flora and Fauna) Conversion Order 1999*.

⁸³ Murray-Darling Basin Authority, *The Living Murray Story: One of Australia's Largest River Restoration Projects* (Murray-Darling Basin Authority, 2011), 6–11. A range of state water recovery projects had been underway for some time, but *The Living Murray* was the first on the basin scale.

⁸⁴ *National Water Initiative*, above n 23, par 35, 43.

⁸⁵ *Water Act 2007* (Cth) ss 20, 23.

⁸⁶ *Murray-Darling Basin Plan*, above n 25.

⁸⁷ *Ibid*, ss 6.04, 7.09.

⁸⁸ For example, see the Victorian Environmental Water Holder, *Water Holdings* (11 March 2016) <<http://www.vewh.vic.gov.au/managing-the-water-holdings>>.

⁸⁹ Commonwealth of Australia, *Securing Our Water Future* (Australian Government Department of the Environment, Water, Heritage and the Arts, 2010) ('*Securing Our Water Future*').

⁹⁰ Eg, in 2004, Victoria invested \$100 million in improving the health of water resources, including environmental water recovery, see Department of Sustainability and Environment (Vic), *Victorian Government White Paper: Securing Our Water Future Together* (State of Victoria, 2004), 43 ('*Our Water Our Future*'); followed by a further \$600 million to secure 75 GL by upgrading irrigation infrastructure, Department of Sustainability and Environment (Vic), *Our Water Our Future: The Next Stage of the Government's Water Plan* (State of Victoria, 2007), 4. In 2006, NSW invested \$105 million in water recovery, see NSW Government, *New South Wales RiverBank Business Plan Part A: Program Plan 2006-2011 Buying and Managing Water for the environment (2010 Update)* (Department of Environment, Climate Change and Water, 2010) ('*RiverBank Business Plan Part A*'). Various actions have been taken by non-government agencies to procure water for the environment, see examples in M A Siebentritt (ed), *Water Trusts: What Role Can They Play in the Future of Environmental Water Management in Australia? Proceedings of a Workshop held on 1 December 2011* (Water Trust Alliance and Australian River Restoration Centre, 2012).

As the water recovery process nears completion,⁹¹ the focus of environmental water provision shifts from recovery to management.⁹² The volumes of environmental water available are large and represent a substantial public investment; they must be managed effectively to maximise the potential environmental outcomes. For example, by 2015 in the southern MDB, the CEWH had purchased almost 1000GL of entitlement, or just over 13% of the entitlement on issue.⁹³ In addition, as environmental water recovery has progressed, water markets within the MDB have increased in activity.⁹⁴

Legally, this environmental water includes both environment-specific entitlements, and water rights previously held by consumptive users.⁹⁵ For example, the Commonwealth *Water Act 2007* defines held environmental water as 'water available under: (a) a water access right; or (b) a water delivery right; or (c) an irrigation right', which refer to water rights created under state statutes.⁹⁶ New South Wales and Victoria both specify water rights for the environment in legislation, by the creation of specific legal rights for the environment,⁹⁷ as well as enabling the transfer of water rights from other users. In Queensland and South Australia, the legislation does not distinguish between water rights held by the environment and by other users. In both cases, water rights that have been previously held by irrigators can be transferred to the environment.⁹⁸

In response to the need for effective management of increasing volumes of environmental water, and the capacity to operate within a water market, governments at the federal and state level have created new organisations with responsibility for holding and managing environmental water: the government EWMs. Over the same period, non-government organisations (NGOs) have also emerged with the intent of providing

⁹¹ Water recovery for the environment is intended to be complete in advance of 2019, see Barry T Hart, 'The Australian Murray–Darling Basin Plan: Challenges in its Implementation (Part 1)' (2015) doi: 10.1080/07900627.2015.1083847 *International Journal of Water Resources Development*.

⁹² Mike Young, 'Managing Environmental Water' in Jeff Bennett et al (eds), *Making Decisions About Environmental Water Allocations* (Australian Farm Institute, 2010) 51.

⁹³ Aither, *Water Markets Report: 2015-16 review and 2016-17 outlook* (Aither, Pty Ltd, 2016).

⁹⁴ *Australian Water Markets: Trends and Drivers*, above n 46, 5-6.

⁹⁵ This transfer of water rights between users and use types has been facilitated by the water market, which is a shared resource market, Chapter 3, 80.

⁹⁶ *Water Act 2007* (Cth) s 4.

⁹⁷ See, for example, environmental entitlements, *Water Act 1989* (Vic) ss 48A-48PA.

⁹⁸ *Australian Environmental Water 2012*, above n 10.

an alternative method of recovery of, and management arrangements for, environmental water.⁹⁹

The government EWMs have been constructed within water law as organisations with legal personhood that can hold and manage water rights for the environment (Table 8). The non-government EWMs, whilst they are often incorporated under alternative legal frameworks, operate within water law frameworks by virtue of their legal personhood, which enables them to hold water rights (Table 8). The EWMs, as holders of the legal water rights for the environment, create legal personhood for at least part of the aquatic environment within the water law of south-eastern Australia. As Chapter 3 argued, this combination of legal form with water rights in the context of a water market creates a particularly powerful combination of legal capacity and competence. However, the Australian EWMs still face the challenge of how to use their power, without undermining the cultural narrative that the environment is worthy of protection.¹⁰⁰

Understanding the way that the Australian EWMs navigate the tension between being worthy of protection and yet powerful enough to act requires an analysis of both the legal form and the activities of the EWMs. Further, although the EWMs of south-eastern Australia provide a voice for the environment in different forums, they were not intentionally created to represent the environment as such, but rather to undertake specific tasks related to the recovery and/or management of environmental water. As a result, their construction of the aquatic environment as a legal person is an emergent property of their creation and operation. Gaining insight to the emergent nature of the EWMs requires an empirical analysis of both the publicly available information (legislation, websites and public reports) as well as interviews with the staff of these organisations. The details of the methods used to undertake this empirical analysis as part of this case study are set out in Chapter 4. The next section presents the findings of the analysis.

III. THE ENVIRONMENTAL WATER MANAGERS OF SOUTH-EASTERN AUSTRALIA

The EWMs are identifiable organisations that are accorded legal personality, with specific objectives to improve the health of aquatic ecosystems over time, using

⁹⁹ Siebentritt, above n 90, O'Donnell, 'Australia's Environmental Water Holders', above n 7.

¹⁰⁰ For more detail, see Chapter 7.

environmental water rights.¹⁰¹ A textual analysis of the relevant legislation is the starting point for the examination of the creation and operation of the EWMs, but the EWMs are legal persons, operating in the rapidly changing context of water availability, ecological condition and socio-ecological values. Of particular interest is the interaction between the actions of the EWMs, and the legal context in which they operate: the existence and operation of the EWMs is beginning to affect the broader water law systems, which in turn affects the operation of the EWMs. In Australia, this interaction is particularly clear in environmental water recovery, but is also becoming apparent in response to the environmental water management activities as well.

A. *Legal Form: How are the EWMs Constructed in Law?*

Australia has a range of both government and non-government environmental water organisations with responsibility for holding and using environmental water (Table 8). This section examines the legislation that creates the legal form of the EWMs, and their capacity and competence to hold and manage water rights.

There are eight EWM organisations operating (or recently operating) in Australia. Of these, two are government departments: the NSW Office of Environment and Heritage (OEH) and the SA Department of Environment, Water and Natural Resources. The decisions of these EWMs on the acquisition and use of their water rights are obscured by the departments' broader responsibilities for water resource management. The inability to hold a particular element of the department to account for environmental water management decisions makes it difficult for these departments to truly personify the environment.¹⁰² Although other state government departments assist in the management of planned environmental water, they are not responsible for the management of held environmental water, so have been excluded from this discussion.¹⁰³

Several non-government organisations have operated in the environmental water space for a short time (such as the 'Just Add Water' campaign by the Australian Conservation Foundation, which represented a one-off investment in environmental water recovery),¹⁰⁴

¹⁰¹ Chapter 2, 41.

¹⁰² For a discussion of why identifiability is so important, see Erin O'Donnell, 'Institutional Reform in Environmental Water Management: the New Victorian Environmental Water Holder' (2012) 22 *Journal of Water Law* 73.

¹⁰³ For more detail on the other states, refer to *Australian Environmental Water 2012*, above n 10.

¹⁰⁴ Siebentritt, above n 90.

or with insufficiently specific objectives (such as the Murray-Darling Basin Foundation, see discussion below), and do not meet the definition of an EWM. Healthy Rivers Australia, one of the earliest NGO EWMs with ongoing environmental watering activities, has since ceased operations, but has been included in Table 8 for the sake of historical completeness.

1. Government EWMs

Australia's government EWMs operate at the federal, basin and state levels. At the federal level is the Commonwealth Environmental Water Holder (CEWH), an independent statutory entity established in 2007, in response to severe drought across south-eastern Australia, with the responsibility for managing the environmental water holdings of the Commonwealth Government.¹⁰⁵ This responsibility includes using the water in accordance with the Murray-Darling Basin Plan requirements, as well as the capacity to trade or carryover water.¹⁰⁶ The CEWH is a statutory function performed by an employee of the Australian public service, and the necessary staff to support that person (now known as the Commonwealth Environmental Water Office).¹⁰⁷ The CEWH is responsible to the Commonwealth Minister for Environment, who retains the capacity to issue directions on how water is to be used within a given year;¹⁰⁸ and the Minister for Water, who retains the overall responsibility for administering the *Water Act 2007* (Cth). The CEWH reports publicly on the water it holds and how that water has been used.

At the level of the MDB, the Murray-Darling Basin Authority (MDBA) is responsible for managing the portfolio of water entitlements obtained through *The Living Murray* (TLM) program.¹⁰⁹ The MDBA is a statutory corporation underpinned by both Commonwealth legislation and intergovernmental agreement.¹¹⁰ The annual environmental watering plans are prepared by the Environmental Watering Group, which comprises the state governments and the MDBA.¹¹¹ Since the passing of the *Water Act 2007* (Cth), the MDBA has had a much broader planning and enforcement role in water resources management

¹⁰⁵ *Water Act 2007* (Cth) ss 104-5.

¹⁰⁶ *Water Act 2007* (Cth) ss 105-6.

¹⁰⁷ *Water Act 2007* (Cth) ss 115-6.

¹⁰⁸ *Water Act 2007* (Cth) s 107.

¹⁰⁹ *Australian Environmental Water 2012*, above n 10, 21.

¹¹⁰ *Water Act 2007* (Cth) ss 18E, 171-176.

¹¹¹ Murray Darling Basin Authority, *Environmental delivery* (13 March 2013) *The Living Murray* <http://www.mdba.gov.au/programs/tlm/programs_to_deliver/environmental_delivery>.

across the MDB, and this potentially conflicts with its responsibilities as an EWM.¹¹² However, for the moment, the MDBA continues to hold the water rights and retain the decision-making responsibility for TLM entitlements.¹¹³

At the state level, the Victorian Environmental Water Holder (VEWH),¹¹⁴ the New South Wales Riverbank/OEH¹¹⁵ and the South Australian Department of Environment, Water and Natural Resources¹¹⁶ all have the capacity to use, trade and carryover environmental water, although these capacities are limited in each state in different ways.¹¹⁷

The New South Wales and South Australian examples demonstrate the importance of identifiability and specificity for an EWM organisation. Identifiability is crucial for accountability: it must be clear who is making the decision, and on what grounds, in order to hold them accountable for the outcomes of that decision.¹¹⁸ More fundamentally, these two examples demonstrate the importance of the relationship between legal personhood, water markets, and environmental water rights. Although both departments hold environmental water and can decide to use or trade it, they do not do so as a legal person. Their decisions may only be scrutinized as an exercise of the administrative powers that otherwise reside with a Minister, and such Ministerial decisions are almost always a question of balance. Without a clear legal identity, and specific, limited focus on the aquatic environment, these government departments do not operate to enhance the legibility of the environment to the law, which can only view their activities obliquely, through the lens of administrative law. The aquatic environment itself remains obscured. The New South Wales entity, Riverbank, was originally significantly more identifiable as a mechanism for water recovery, and was

¹¹² A Horne and E O'Donnell, 'Decision Making Roles and Responsibility for Environmental Water in the Murray-Darling Basin' (2014) 18(2) *Australian Journal of Water Resources* 118.

¹¹³ Ibid. This may reflect the previous agreement between the Murray-Darling Basin states to contribute water to a jointly managed program. This political reality may result in the ongoing blurred responsibilities for the MDBA.

¹¹⁴ The VEWH was established in 2010; *Water Act 1989* (Vic) ss 33DA, 33DB.

¹¹⁵ New South Wales' Riverbank was established in 2006, see *RiverBank Business Plan Part A*, above n 90.

¹¹⁶ Government of South Australia, *2012-13 Annual Environmental Watering Plan for the South Australian River Murray* (Department of Environment, Water and Natural Resources, 2012).

¹¹⁷ For example, in Victoria, any sale of an environmental entitlement (unlike the sale of water allocation available under such an entitlement) requires approval from the Minister for Water and the Minister for Environment prior to the sale, *Water Act 1989* (Vic) s 48OB.

¹¹⁸ Erin O'Donnell and Dustin Garrick, 'Chapter 26: Defining Success: a Multi-Criteria Approach to Guide Evaluation and Investment' in Avril Horne et al (eds), *Water For the Environment* (Elsevier, in press).

managed separately to the broader activities of the department,¹¹⁹ and has been included in Table 8 (Riverbank has since been re-absorbed into the department). OEHL still transparently holds and manages water rights on behalf of the aquatic environment, although it lacks a clear organisational form.

South Australia's department previously had an early form of an EWM in the River Murray Environmental Manager, which has also been merged back into the overall department. According to the interview data, South Australia is still considering the creation of an EWM, but is limited by budget considerations:

We don't have an environmental water holder in the sense of the VEWL or the CEWL, but we are investigating setting one up... The issue we come up against: we are a small state, and we don't have the resources to set up this massive entity; if we did set one up it would be a smaller scale than the VEWL or the CEWL. The previous River Murray Environmental Manager got brought back into the agency as part of the merge of the NRM and water management agencies; this was a largely budget driven process.¹²⁰

The VEWL, on the other hand, is a statutory corporation with three commissioners and a small staff.¹²¹ As a body corporate, the VEWL has an independent legal personality of its own. Whilst the VEWL must report to the Victorian environment Minister, the Minister is prohibited from issuing directions on how the VEWL will use its water in any given year,¹²² thus insulating the VEWL from the politics of the government of the day (to at least some extent). Prior to the creation of the VEWL, the environment Minister was the holder of the environmental water entitlements, and legally responsible for all decisions on how to use the available environmental water each year.¹²³ It was a deliberate decision to create the VEWL as a distinct legal person, providing a voice for environmental water that was separate from the Minister and the government.¹²⁴ The VEWL must also prepare annual watering statements that specify the environmental watering priorities for the year ahead, and report on the watering activities that it has undertaken.¹²⁵ These statements and reports are made publicly available on the VEWL's website.

¹¹⁹ *RiverBank Business Plan Part A*, above n 90; see also State of NSW, *Environmental Water Use in New South Wales: Outcomes 2014–15* (Office of Environment and Heritage (NSW), 2015).

¹²⁰ Interview DEWNR.

¹²¹ *Water Act 1989* (Vic) ss 33DF, 33DM.

¹²² *Water Act 1989* (Vic) s 33DS.

¹²³ O'Donnell, 'Victorian Environmental Water Holder', above n 102.

¹²⁴ *Ibid.*

¹²⁵ *Water Act 1989* (Vic) ss33DT-DY.

2. Non-Government EWMs

Most of the non-government EWMs were established during the severe drought in south-eastern Australia from 2006-2010 (although some have links to older organisations).¹²⁶ There are two organisational types: incorporated associations, and trusts established by other NGOs.

Healthy Rivers Australia was established as a not-for-profit incorporated association.¹²⁷ Although Healthy Rivers Australia (HRA) no longer conducts operations as an EWM, it was in operation until 2014. HRA was incorporated under the South Australian *Associations Incorporations Act 1985*, and was registered as a tax deductible gift recipient with the Australian Charities and Not-for-Profits Commission. HRA was originally established to obtain donations of environmental water available at the end of the irrigation season, under earlier South Australian law which prevented irrigators carrying this water over for use in future years.¹²⁸ HRA was the first organisation to obtain a tax concession on the basis of a donated water allocation, and combined its water donations with corporate and individual charity donations to increase environmental water. HRA reported publicly on the donations it received and how it used those donations to improve environmental flows in wetlands in South Australia.¹²⁹ Following the cessation of its operations as an EWM, HRA is supporting other non-government EWMs to play a role in managing environmental water.

Secondly, there are water trusts or water banks that are established and operated by a parent organisation, such as the Environmental Water Trust,¹³⁰ Water for Nature,¹³¹ and the Murray Darling Foundation (an initiative of Murray-Darling Association), which has been operating a water bank for environmental purposes since 2007.¹³² The Murray-

¹²⁶ The Murray Darling Wetlands Working Group Ltd had its origins in the NSW Murray Wetlands Working Group, which was formed in 1992. The corporation has only existed since 2009, see Murray-Darling Wetlands Working Group Ltd. *About Us: History* (11 March 2013) <<http://www.murraydarlingwetlands.com.au/about-us/history/>>.

¹²⁷ Healthy Rivers Australia, *About Us* (11 March 2013) <<http://www.healthyrivers.org.au/about-us>>.

¹²⁸ Siebentritt, above n 90, 7.

¹²⁹ HRA was originally the Waterfind Environment Fund, see Waterfind Environment Fund, *Annual Report 2007-2008* (Waterfind Environment Fund, 2008).

¹³⁰ Environmental Water Trust, *Home* (13 March 2013) <<http://environmentalwatertrust.org.au/>>.

¹³¹ Water For Nature, *Welcome to Water For Nature* (13 March 2013) <<http://www.waterfornature.org.au/>>.

¹³² Murray Darling Foundation, *Murray Darling Foundation Annual Report 2011-2012* (Murray Darling Association, 2012), 5.

Darling Foundation is not considered to be an EWM (and excluded from Table 9), as holding and managing of environmental water is not a primary objective of the foundation.¹³³ Again, this organisation helps to underscore the importance of the EWM definition in enhancing the legibility of the aquatic environment to the law. Although the Murray-Darling Foundation operated as a water bank for community environmental water holdings, it relied on other organisations (namely the Murray-Darling Wetlands Working Group) to make decisions on how that water would be used. The Murray-Darling Foundation was established to promote the environmental objectives of the Murray-Darling Association, which are:

3.1.1 To promote the right balance between consumptive use and water for the environment.

3.1.2 To promote sustainable development.¹³⁴

These objectives continue to construct the environment as merely a component of sustainable development, and although the Foundation's constitution acknowledges that the environment does require water, the objective obscures this behind the question of finding the 'right balance'. The capacity of the law to interrogate the decisions made under this constitution is limited to a consideration of whether such decisions were adequately balanced, rather than whether they achieved an environmental outcome.

In general, the non-government organisations have relatively small environmental water holdings, and have focused on acquiring water allocation for temporary use, rather than the long-term water entitlements. They rely on philanthropic donations (of both money and water), and most receive support from government, either financially or in kind.¹³⁵ For example, in 2012, the CEWH entered into an unprecedented agreement with Water For Nature to manage environmental water in South Australia. Typically, the CEWH works with the state government agencies to deliver its water, and this agreement with a NGO remains unique. The CEWH and Water For Nature have a five-year agreement in which the CEWH will make up to 10 GL of water available each year for Water For Nature to deliver.

The activities of non-government organisations are limited by their own objectives and their capacities under the water resource management statutes of the jurisdictions in which they operate, which can lead to very different outcomes. For example, in Victoria,

¹³³ Murray Darling Association, *Constitution* (Murray Darling Association, 2006).

¹³⁴ Ibid.

¹³⁵ Siebentritt, above n 90.

non-government organisations may purchase water entitlements, but environmental entitlements can only be allocated to the VEWH.¹³⁶ In New South Wales, on the other hand, the Murray Wetlands Working Group (the predecessor of the Murray Darling Wetlands Working Group Ltd) was given responsibility for managing two adaptive environmental water licences, effectively as an arm of the government.¹³⁷ In South Australia, the environmental water access licences were previously allocated for a specific purpose, so that the government department held a large water access licence to cover the evaporative losses associated with wetlands in South Australia, and licences purchased for environmental purposes could still be classed as irrigation entitlements. The draft River Murray Water Allocation Plan now removes this need for a purpose, but the environmental licences are still part of different consumptive pools. As a result, the Water For Nature trust may manage water available under water access licences in consumptive pool E (as part of its agreement with the CEWH), but not the Wetland Consumptive Pool.¹³⁸

Table 8 sets out the EWMs of south-eastern Australia, and specifies the legal basis for their source of legal personhood and their ability to hold and manage water rights.

Table 8 EWMs of south-eastern Australia

EWM	Geographical extent of activities	Organisation type	Source of legal personhood rights and duties	Source of water holding and management capacities	Accountability: to whom does this organisation report?
Commonwealth Environmental Water Holder	Australia, but primarily the Murray-Darling Basin	Statutory entity: a person appointed to hold the water and make decisions, supported by the Commonwealth Environmental Water Office. ¹³⁹	<i>Water Act 2007</i> (Cth) s105	<i>Water Act 2007</i> (Cth) ss105, 108. The specifics of the water rights held are defined by the legislation of the state in which those water rights	Minister for Environment (Commonwealth), although the Minister for Water oversees the administration of the <i>Water Act 2007</i> (Cth). ¹⁴⁰

¹³⁶ *Water Act 1989* (Vic) s 48B.

¹³⁷ Murray-Darling Wetlands Working Group Ltd, *About us: History* (2013) <www.murraydarlingwetlands.com.au>. It is unclear whether this scenario would occur with the new corporate not-for-profit form of the organisation.

¹³⁸ South Australia Murray-Darling Basin Natural Resources Management Board, *Draft Water Allocation Plan for the River Murray Prescribed Watercourse* (Government of South Australia, 2014), 17.

¹³⁹ Australian Government Department of Environment, *Commonwealth Environmental Water Office* (2016) <<http://www.environment.gov.au/water/cewo>>.

¹⁴⁰ *Water Act 2007* (Cth) s114.

EWM	Geographical extent of activities	Organisation type	Source of legal personhood rights and duties	Source of water holding and management capacities	Accountability: to whom does this organisation report?
				originated.	
Murray-Darling Basin Authority	Murray-Darling Basin	Statutory corporation: chief executive, chair and four other members appointed by Governor-General, plus staff. ¹⁴¹	<i>Water Act</i> 2007 (Cth) ss173, 176	<i>Water Act</i> 2007 (Cth), ss173, 239C-E. The specifics of the water rights held are defined by the legislation of the state in which those water rights originated.	Minister for Water (Commonwealth) and the Murray-Darling Basin Ministerial Committee (including Ministerial representatives from all Basin states). ¹⁴²
RiverBank (now New South Wales Office of Environment and Heritage) ¹⁴³	New South Wales	Function within department; funded by the Environmental Trust. ¹⁴⁴	Unclear personhood. Licences held by Minister for Environment on behalf of NSW and funds managed by the Environment Trust. ¹⁴⁵	<i>Water Management Act</i> 2000 (NSW).	Minister for Environment (NSW).
Victorian Environmental Water Holder	Victoria	Statutory corporation	<i>Water Act</i> 1989 (Vic) s33DB	<i>Water Act</i> 1989 (Vic) ss33DD-DE, 48B; as a person, the VEWH can also hold water shares and water allocations.	Victorian Minister for Environment ¹⁴⁶
South Australian Department of Natural Resources and Environment	South Australia (but water licences only in the River Murray)	Government department	The department operates as a delegate of the Minister for Water	<i>Natural Resources Management Act</i> 2004, ss124-5, s146; see also Draft River Murray Water	Minister for Water

¹⁴¹ *Water Act* 2007 (Cth) ss177-8, 206.

¹⁴² *Water Act* 2007 (Cth) ss213A-B, 214.

¹⁴³ *RiverBank Business Plan Part A*, above n 90; this water is now held and managed by the NSW Office of Environment and Heritage. This transition back to a government department without an identifiable environmental water decision-maker means that this organisation no longer meets the definition of an EWM (see Chapter 2, 41).

¹⁴⁴ *Ibid.*

¹⁴⁵ The Environment Trust is a government body corporate established under the *Environmental Trust Act* 1998 (NSW) s5.

¹⁴⁶ *Water Act* 1989 (Vic) s33DZA.

EWM	Geographical extent of activities	Organisation type	Source of legal personhood rights and duties	Source of water holding and management capacities	Accountability: to whom does this organisation report?
				Allocation Plan ¹⁴⁷	
Environmental Water Trust ¹⁴⁸	Murray-Darling Basin	Trust and tax deductible gift recipient public fund owned by the Murray-Darling Wetlands Working Group (a public company limited by guarantee). ¹⁴⁹	The trustee is a registered company under the <i>Corporations Act 2001</i> (Cth), ss117-119, 124.	State-based water resources legislation in area of operation. ¹⁵⁰ The purposes of the trust include the holding of water access licences. ¹⁵¹	Murray-Darling Wetlands Working Group; members and donors in annual reports.
Healthy Rivers Australia ¹⁵² (now inactive)	South Australia, Victoria and New South Wales	Incorporated association registered as a tax deductible gift recipient and charitable organisation.	<i>Associations Incorporations Act 1985</i> (SA), s25.	State-based water resources legislation in area of operation. ¹⁵³	Office of Consumer and Business Affairs, South Australia; members and donors in annual reports.
Water for Nature ¹⁵⁴	River Murray, South Australia	Trust established by the Nature Foundation SA, an incorporated association registered as a tax deductible gift recipient and charitable organisation.	<i>Associations Incorporations Act 1985</i> (SA), s25.	<i>Natural Resources Management Act 2004</i> (SA).	Nature Foundation SA; Office of Consumer and Business Affairs, South Australia; contract partners (eg, CEWH), members and donors in annual reports.

Each EWM in south-eastern Australia is a specific type of organisation, with a specific geographical focus, and particular accountability arrangements (Table 8). The next section examines how the EWMs of south-eastern Australia leverage their legal personality to support their activities in water recovery and water management for the aquatic environment.

¹⁴⁷ South Australia Murray-Darling Basin Natural Resources Management Board, above n 138.

¹⁴⁸ Environmental Water Trust, *What is the Environmental Water Trust?* (10 March 2016) <<http://environmentalwatertrust.org.au/>>.

¹⁴⁹ Environmental Water Trust, *About the Trust* (10 March 2016) <https://environmentalwatertrust.org.au/about-the-trust/> (copy on file with author).

¹⁵⁰ So far this has been Queensland and New South Wales.

¹⁵¹ Environmental Water Trust, above n 149.

¹⁵² Healthy Rivers Australia, *Strategic Plan Brochure* <<http://www.healthyrivers.org.au/>>.

¹⁵³ So far this has been South Australia, Victoria and New South Wales.

¹⁵⁴ Water For Nature, *Welcome to Water For Nature* <<http://www.waterfornature.org.au/>>.

B. Operation of the EWMs: Recovery and Management

Australia's EWMs focus on both recovering sufficient water for the environment, and managing this water to achieve the maximum environmental outcomes.¹⁵⁵ The nature of the EWMs in south-eastern Australia is a consequence of the particular emphasis of Australia's water laws, which are intended to manage the *use* of water *resources*. In the regulated river systems of south-eastern Australia, water law requires that water access licences be held by a legal person; and similarly that a legal person is required when deciding to deal with the water allocation (either calling it out from storage, or transferring it to or from another user).¹⁵⁶ The capacity to recover and manage legal rights to water for the environment in Australia is therefore contingent on the legal personality of the EWM.

However, the EWMs do not exist in a vacuum. The conceptual framework identifies three constructions of the environment in law: a broad socio-ecological concept, a special but weak legal object and a more powerful, but less protected, legal person.¹⁵⁷ As described in this chapter, the aquatic environment is constructed in these three ways in Australia's water laws. The *raison d'être* of each EWM is dependent on the continued desire to improve the quality of the aquatic environment; and their actions will be fraught by the tensions between the different constructs of the environment, and vulnerable to changing community perceptions of what the environment really means.¹⁵⁸

Table 9 presents the objectives of each of the currently-operating EWMs in south-eastern Australia. As this table shows, the objectives of the EWMs focus on the use of environmental water to improve and maintain the health of the aquatic environment, but may also include references to the broader community, and the need to support continued use of the environment by people.

¹⁵⁵ For example, these outcomes may be stimulating fish spawning, or supporting bird breeding events; see Department of Sustainability and Environment (Vic), *Environmental Watering in Victoria 2009/10* (State of Victoria, 2010).

¹⁵⁶ Although water legislation may enable a specific entity to hold and manage other forms of water entitlements (such as a Minister or a government agency), when water is recovered in the form of a water access licence, it can be held by any person.

¹⁵⁷ Chapter 3, 88.

¹⁵⁸ Chapter 2, 41.

Table 9 Objectives of south-eastern Australian EWMs

EWM	Objectives
Commonwealth Environmental Water Holder	‘(i) The functions of the Commonwealth Environmental Water Holder are, on behalf of the Commonwealth: (a) to manage the Commonwealth environmental water holdings; and (b) to administer the Environmental Water Holdings Special Account... (3) The functions of the Commonwealth Environmental Water Holder are to be performed for the purpose of protecting or restoring the environmental assets of: (a) the Murray-Darling Basin; and (b) other areas outside the Murray-Darling Basin where the Commonwealth holds water; so as to give effect to relevant international agreements.’¹⁵⁹ <i>Objectives of the environmental watering plan:</i> ‘(d) protect and restore the wetlands and other environmental assets of the Murray-Darling Basin; and (e) protect biodiversity dependent on the Basin water resources and achieve other environmental outcomes for the Murray-Darling Basin.’¹⁶⁰
Murray-Darling Basin Authority (The Living Murray entitlements)	<i>The Living Murray Initiative:</i> Commits to recovering water over five years to ‘maximise environmental outcomes’ at ‘six Icon Sites... Barmah-Millewa Forest; Gunbower and Koondrook-Perricoota Forests; Hattah Lakes; Chowilla Floodplain (including Lindsay-Wallpolla); the Murray Mouth, Coorong and Lower Lakes; and the River Murray Channel’, where the water is managed in accordance with the Living Murray Environmental Watering Plan (LM EWP).¹⁶¹ The LM EWP ‘will aim to apply available water in a way that enhances ecological outcomes across the six Icon Sites, protects existing high value areas or areas in good condition and realises the greatest environmental benefit from the water.’¹⁶²
Victorian Environmental Water Holder	‘[T]o manage the Water Holdings for the purposes of— (a) maintaining the environmental water reserve in accordance with the environmental water reserve objective; and (b) improving the environmental values and health of water ecosystems, including their biodiversity, ecological functioning and water quality, and other uses that depend on environmental condition.’¹⁶³
Environmental Water Trust	Seven objectives, including: ‘(a) to protect and enhance the natural water resources of Australia which includes protecting, enhancing and restoring water sources, their associated ecosystems, ecological processes and biological diversity throughout Australia;... (c) to apply for, acquire, manage, hold or dispose of Water Access Licences (WAL) as the Trustee determines for these purposes’.¹⁶⁴
Water For Nature	To: ‘[w]ork with SA River Murray communities to source water and deliver community-driven projects that benefit wetlands and floodplains and the species they support’.¹⁶⁵

Table 9 establishes the specifically environmental focus of the EWMs. The next sections describe the two major activities undertaken by the EWMs of south-eastern Australia (recovery and management of environmental water) and the role of the EWMs in each. This analysis highlights:

¹⁵⁹ *Water Act 2007* (Cth) s 105.

¹⁶⁰ *Water Act 2007* (Cth) s 28.

¹⁶¹ Murray-Darling Basin Commission, *The Living Murray Business Plan: 25 May 2007* (Murray-Darling Basin Commission, 2007) (*TLM Business Plan*).

¹⁶² *Ibid*, para 129.

¹⁶³ *Water Act 1989* (Vic) s 33DC.

¹⁶⁴ Environmental Water Trust, above n 149.

¹⁶⁵ Nature Foundation SA, *Water For Nature: Our Work* (14 March 2016) <<http://naturefoundation.org.au/what-we-do/water-for-nature/our-work>>.

- The requirement for the EWM to be a legal person to undertake these activities (legibility to the law);
- Evidence of the way that tensions between the multiple constructs of the aquatic environment manifest in the activities of the EWMs; and
- The capacity of the activities of the EWMs to alter their operating environments (interaction).¹⁶⁶

1. *Recovery of Environmental Water: Right to Hold and Acquire Water Rights*

Recovery of water for the environment involves a number of steps,¹⁶⁷ and this section focuses on the specific work involved in three phases:

- 1) planning and prioritization – how much water and where is it needed?
- 2) process of recovery – how can the water be obtained at the lowest cost?
- 3) formal legal transfer to the environment – who is legally capable of holding environmental water?¹⁶⁸

In south-east Australia, the planning and prioritization phase establishes the environmental water demands, and is generally undertaken by government agencies (such as state government departments, catchment management authorities and the Murray-Darling Basin Authority). The leading example of this work in the MDB is the Murray-Darling Basin Plan, which establishes the sustainable diversion limit on water extraction from the MDB, thus also establishing the limits on water extraction from local catchments.¹⁶⁹ At the state level, long-term water resource plans such as Victoria's Sustainable Water Strategies also set targets for environmental water recovery in local catchments, based on specific environmental flow requirements.¹⁷⁰ These plans identify how much environmental water is needed to achieve a stated level of environmental health, and are used to target environmental water recovery. Even when water recovery is undertaken by NGOs, where the water is intended for public land, the planning process is based on government programs that identify endangered species and

¹⁶⁶ This connection between legibility and the consequences of the multiple constructs is explored in Chapter 7.

¹⁶⁷ Chapter 2, 32.

¹⁶⁸ In the Australian context, monitoring and evaluation of water recovery are undertaken as part of the management activities, as the use of the water determines how effective and efficient the recovery process itself has been (see Chapter 2, 35).

¹⁶⁹ *Murray-Darling Basin Plan*, above n 25.

¹⁷⁰ *Northern Region Sustainable Water Strategy*, above n 76, chapter 7.

appropriate wetting and drying periods for wetlands. A South Australian NGO EWM staff member commented that:

The general setting has been the government policy framework set up around needing to provide water and recover it... In this jurisdiction, it's mostly driven by state government policy... In South Australia, you're not permitted to put water in a [public] wetland unless you have approval from the state government... all the sites we looked at required approval from the state environmental manager.¹⁷¹

In Australia, the second phase of recovering the water has been the joint work of government and non-government agencies. The earliest large scale water recovery program, the Living Murray Initiative, involved \$AUD500 million of government investment, and established three mechanisms for water recovery that are still in use today. One of the cheapest in terms of financial outlay was Victoria's regularization of water entitlements in northern Victoria.¹⁷² As part of meeting the National Water Initiative requirement of creating permanent, secure, tradeable rights to water, Victoria converted a poorly defined low reliability water right (called 'sales' water) to a permanent water share, retaining the historical reliability of the right. In return for formalizing irrigators' rights to this water in an ongoing way, Victoria converted 20% of this water (equivalent to 120 GL in long-term average yield) to environmental entitlements for the Snowy and Murray Rivers.¹⁷³ This water recovery had an extremely low financial cost, and remains an excellent example of finding a win-win for irrigators and the environment when changing water policy.

However, the water recovered in Victoria was low reliability, and unlikely to be available in dry years.¹⁷⁴ Two other mechanisms of recovery can provide high reliability water access entitlements. Investing in water efficiency savings is often the most politically popular option, and remains the mechanism of choice for government water recovery in south-eastern Australia.¹⁷⁵ The Living Murray Initiative depended heavily on investment in infrastructure to create water savings,¹⁷⁶ and water recovery under the Murray-Darling Basin Plan has also focused the largest part of government investment in this option,

¹⁷¹ Interview HRA.

¹⁷² Foerster, 'What's in a Name?', above n 59.

¹⁷³ *Our Water Our Future*, above n 90, actions 2.3 and 3.6.

¹⁷⁴ In Victoria, water allocation licences are classified as 'high reliability' or 'low reliability'. When water is allocated under these licences, high reliability water allocation licences must receive 100% of their allocation before any water is allocated to low reliability water allocation licences.

¹⁷⁵ Department of Environment (Cth), *Water Recovery Strategy for the Murray-Darling Basin* (Commonwealth of Australia, 2014).

¹⁷⁶ *TLM Business Plan*, above n 161.

with \$AUD5.8 billion going towards water efficiency savings.¹⁷⁷ However, large scale water efficiency investments take a long time to generate water savings, and typically cost much more than the market price of water.¹⁷⁸

Thirdly, water can be acquired from existing users. Again, the largest water recovery programs have been run by governments. In 2005, the Living Murray Initiative ran a small pilot program, demonstrating how water could be obtained using the market, but only acquiring a small volume. New South Wales' Riverbank set aside almost \$AUD150 million to acquire and manage water access licences for the environment.¹⁷⁹ This was followed by investments made by Water For Rivers, a joint venture of the Commonwealth, New South Wales and Victorian State governments in recovering water for the Snowy and Murray Rivers.¹⁸⁰ In 2007, the Commonwealth Government committed \$AUD3.2 billion to buying permanent water access entitlements from existing irrigators. Although this water has since been transferred to the CEWH, the process of acquiring the water was conducted by the Commonwealth Department of Environment, in a series of tenders. This was an attempt to separate the EWM from the government purchase, but is likely to have been in vain: the sellers knew that the CEWH was the person ending up with the water, and they knew that they were offering their water only to the CEWH.¹⁸¹

Non-government EWMs have also successfully established processes for water recovery via transfer of water rights. One of the best known examples in south-eastern Australia is the work of Healthy Rivers Australia (formerly the Waterfind Environment Fund), which pioneered the legal capacity to donate water access entitlements and water allocations to the environment as a tax-deductible donation.¹⁸² Other NGOs engaged in one-off water recovery efforts to highlight the possibilities of using the market to recover water for the environment.¹⁸³

¹⁷⁷ *Securing Our Water Future*, above n 89. In comparison, only \$AUD3.2 billion was allocated to water purchase.

¹⁷⁸ Productivity Commission, *Market Mechanisms for Recovering Water in the Murray-Darling Basin (Final Report, March)* (Productivity Commission, 2010).

¹⁷⁹ *RiverBank Business Plan Part A*, above n 90.

¹⁸⁰ Water For Rivers, *About Water For Rivers* (12 April 2011) <<http://www.waterforrivers.org.au/>>.

¹⁸¹ See Chapter 7, 196-8.

¹⁸² Siebentritt, above n 90.

¹⁸³ Australian Conservation Foundation, *Cash flow: donated water revives unique Murray wetland* (13 February 2012), <http://acfonline.org.au/articles/news.asp?news_id=2815>. The ACF is not an

The legal form and legal personality of the EWM is critically important during the third phase of water recovery, where the water is formally transferred to the EWM. Australia's water laws enable legal persons to hold water access entitlements and water allocations, and the EWMs depend on their legal personhood to hold water rights for the aquatic environment.¹⁸⁴

The operation of the EWMs (and government agencies) in recovering water for the environment had two significant effects on water law frameworks. Firstly, the smaller water recovery programs (such as Riverbank, the Living Murray and the donation driven activities of the NGOs) demonstrated the capacity to use the market to recover water for the environment,¹⁸⁵ and that significantly more investment would be required to acquire enough water to achieve the desired environmental outcomes. This led to the massive water recovery program across the MDB under the *Water Act 2007*, which in turn, caused many of the smaller water recovery programs to cease operation, to avoid competing with the Commonwealth water purchase program. As a South Australian NGO staff member stated: 'we're generally of the view that the role of water trusts is no longer to acquire water'.¹⁸⁶

Secondly, the early water recovery programs included different types of environmental water. Some of this was planned environmental water (without a clear legal right attached to it), and even when this water was held water, it was sometimes of a different reliability to the water rights held by irrigators. During the Millennium Drought (2006-2010), water scarcity was so severe across south-eastern Australia that water for the environment was sometimes re-allocated to other uses, to meet critical human needs or to support industry. This was largely prior to the establishment of the formal EWMs, but the it was quickly learned that water rights with the same legal attributes as the rights of irrigators were much safer, as a rule, than water rights that were distinctly different to the rights of irrigators.¹⁸⁷ In response, water recovery activities began to focus on held

EWM because it only engaged in this activity once, and has no ongoing water acquisition or management role.

¹⁸⁴ Although some statutes, such as Victoria's *Water Act 1989*, enable a specific EWM to hold a specific form of water entitlement for the environment, the capacity to acquire generic water access entitlements from irrigators depends on legal personhood.

¹⁸⁵ Productivity Commission, above n 178.

¹⁸⁶ Interview HRA.

¹⁸⁷ For a full discussion of this situation, see O'Donnell, 'Victorian Environmental Water Holder', above n 102.

environmental water¹⁸⁸ with rights that were identical to those of irrigators, largely by acquiring them from irrigators. The CEWH now refers to itself as ‘the largest irrigator in the Murray-Darling system’.¹⁸⁹ As a staff member from the Commonwealth Environmental Water Office remarked, the CEWH is now ‘someone who pays the same fees and charges as anyone else... just another user’.¹⁹⁰

The VEWH was created in direct response to the challenges of holding environmental water during drought, and a staff member commented: ‘[h]aving [the] VEWH established as water holder with same rights and same obligations has given [the] environment a legitimacy that will be very useful in the next drought.’¹⁹¹

Whilst the overall position of the EWM organisations seems to be one of aligning themselves with the irrigators as just another user, not everyone is convinced of the wisdom of this approach. Both Commonwealth Environmental Water Office staff interviewed expressed this ambivalence:

I do wonder: do we really want to be just another user? Do we really want to be like everyone else? What’s happened to date has been really positive, but is there a limit to this?¹⁹²

[W]e say we want to be treated as any other irrigator, the irrigators say the same thing, but we also want to evolve the rules to a more flexible environment to suit us, and this flexibility should also be available to irrigators... But they certainly have views about what we should and shouldn’t be doing. On some things they want us to be the same, on others (eg, carryover) they want us to be different.¹⁹³

When it comes to water recovery, the EWMs of south-eastern Australia are trying to maintain a delicate balance between being treated just the same as an irrigator (with the opportunities that creates for security of water rights and participation in water planning discussions), and maintaining the ‘special’ nature of the environment. Navigating the tension between these two concepts becomes even more challenging for the management of environmental water.

¹⁸⁸ It is noted that the majority of environmental water is still held as planned environmental water.

¹⁸⁹ Long, Warwick, ‘Coalition split as Commonwealth Environmental Water Holder stays with Environment Department’ *ABC Rural* (online) 23 September 2015 <<http://www.abc.net.au/news/2015-09-23/anger-over-environmental-water-holder-split-from-water-departmen/6797094>>.

¹⁹⁰ Interview CEWO 1.

¹⁹¹ Interview VEWH 2.

¹⁹² Interview CEWO 1.

¹⁹³ Interview CEWO 2.

2. *Management of Environmental Water: the EWM as Decision-Maker*

The question of water acquisition is no longer a question – it's really been solved. The Feds have more than they know what to do with it. Now the question is: who holds it? Who delivers it? Who monitors it?¹⁹⁴

In south-eastern Australia, the EWMs are the decision-makers for how water is used in a given year. This decision occurs within a broader cycle of policy and planning, implementation, monitoring, and evaluation.¹⁹⁵ The EWMs are often engaged in these activities, but this work is generally undertaken by government departments or other agencies such as catchment management authorities.¹⁹⁶

The EWMs of south-eastern Australia typically hold water access entitlements, and receive a water allocation under these entitlements.¹⁹⁷ This water allocation is the physical volume of water available, which may be released for use at a particular location; held back for use at a future time; or transferred to another water user (traded). The non-government EWMs generally hold fewer water access entitlements than government EWMs, but often receive the transfer of a water allocation from another water user, or another EWM.¹⁹⁸ In some cases, EWMs also hold water access entitlements to unregulated flow, which does not require release from a dam, but may be shepherded carefully downstream to deliver maximum environmental benefits along the way.¹⁹⁹

The unique, and essential, role of the EWMs of south-eastern Australia in managing environmental water is therefore to act as the decision-maker for environmental water use (see Figure 4).²⁰⁰ A staff member from the VEWH remarked: '*[h]olding and managing – means making decisions about use, trade or carryover*'.²⁰¹ Each year, the EWMs must decide:

- 1) Whether and when to use the water, and where it will be used; and/or

¹⁹⁴ Interview HRA.

¹⁹⁵ Chapter 2, 27, see Table 2, 35

¹⁹⁶ See, eg, the roles set out in *Water Act 1989* (Vic) ss 33DX-DZ.

¹⁹⁷ See terminology in *Australian Water Markets: Trends and Drivers*, above n 46; *Australian Environmental Water 2012*, above n 10.

¹⁹⁸ Siebentritt, above n 90.

¹⁹⁹ Commonwealth Environmental Water Office, *Framework for Determining Commonwealth Environmental Water Use* (Commonwealth of Australia, 2013), 20-21.

²⁰⁰ Figure adapted from O'Donnell, 'Australia's Environmental Water Holders', above n 7.

²⁰¹ Interview VEWH 2.

- 2) whether, when and how much water to trade to (or from) another user as part of meeting their objectives, by improving their environmental water portfolio or investing in an alternative mechanism for enhancing the benefits of environmental water; and/or
- 3) whether and how much water to leave in storage, to be available for use in the following year.

Figure 4 shows the overall process of managing environmental water each year, highlighting the roles played by the EWMs and their various partner organisations. The EWM is the key decision-maker, and while they may rely on the actions of others to gather information, and implement the decisions once made, they are responsible for making the decision.

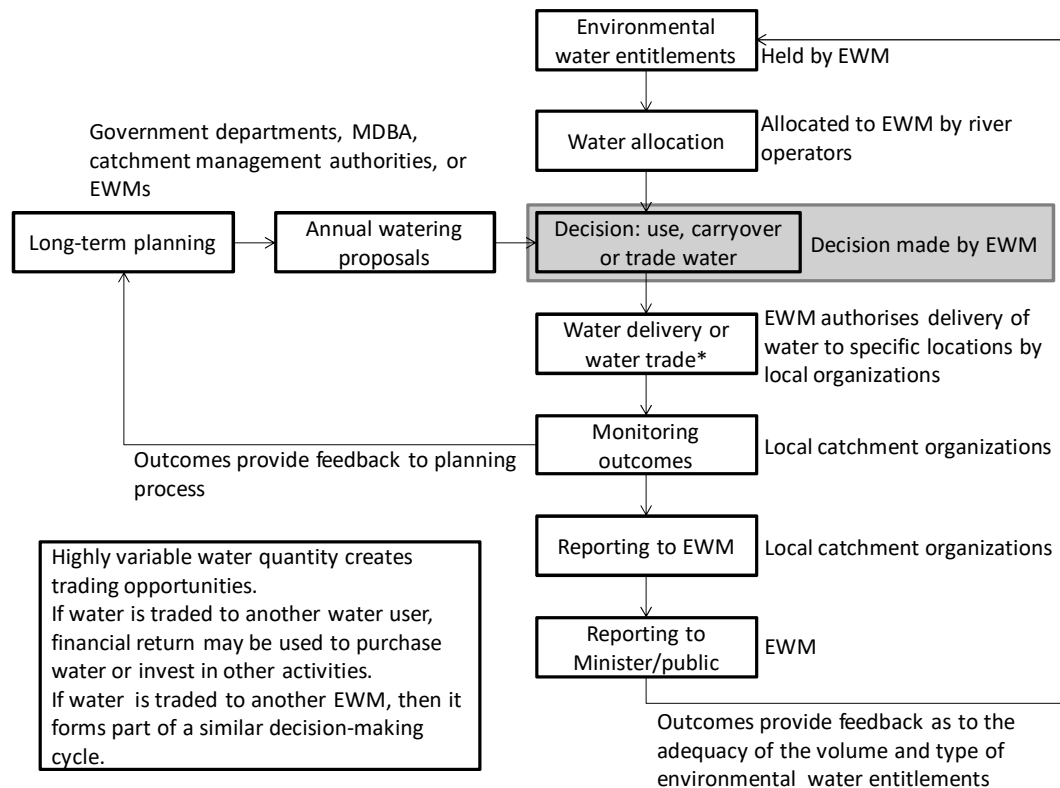


Figure 4 EWM decision-making in environmental water management

The role of the EWM as decision-maker reflects the desire for environmental water management to be transparent, which depends on the capacity to identify and hold the

decision-maker to account for the use of the environmental water.²⁰² Staff from the VEW and CEWH repeatedly emphasised the importance of transparency and accountability for decisions on how to use environmental water:

[The VEW] was set up to provide more independent, accountable and transparent decision-making... everyone wanted to know it was being managed in an accountable and robust way that was independent from politics.²⁰³

Three things: independence, transparency and accountability... There is a big onus on us for transparency, to publish decisions and rationale for decisions... we're focused on ... getting the best we can from the water we've got... Transparency and accountability are flip sides of the same thing... it is very much about real-time decision making.²⁰⁴

The need to make transparent independent decisions outside of government... The need to show the rigor and transparency of achieving environmental objectives based on criteria that are about maximising environmental outcomes.²⁰⁵

[T]o get the best environmental outcome for the whole basin, it's that decision-making role the CEWH was set up to achieve. It was also established to have more independent governance around the holdings themselves.²⁰⁶

The legal personality of the EWMs creates the capacity to hold and deal with the water access entitlements and water allocations, but, more fundamentally, also enables them to act as decision-makers. Their decisions can be identified, and they can be held to account: 'if things go wrong, the responsibility for things that go wrong won't lie with others, they will lie with us'²⁰⁷ (see Table 8).

In making the decision on how to use the environmental water available to it each year, each EWM is also seeking to maximize the environmental outcomes that it can achieve (Table 9). This was an explicit intention in the case of the CEWH and the VEW.²⁰⁸

Maximizing the environmental outcomes for the volume of water available can sometimes mean selling water on the market, to generate funds that can be used to improve the water portfolio, by buying water in alternative locations (or of differing reliability). Both the CEWH²⁰⁹ and the VEW²¹⁰ have sold water that they have

²⁰² For the importance of identifiability and specificity of the EWMs, see Chapter 2, 41.

²⁰³ Interview VEW 2.

²⁰⁴ Interview VEW 1.

²⁰⁵ Interview VEW 3.

²⁰⁶ Interview CEWO 1.

²⁰⁷ Interview CEWO 2.

²⁰⁸ See O'Donnell, 'New Victorian Environmental Water Holder', above n 102 and O'Donnell, 'Australia's Environmental Water Holders', above n 7.

²⁰⁹ Department of the Environment (Cth), *Trading outcomes* (18 November 2015) <<http://www.environment.gov.au/water/cewo/trade/trading-outcomes>>.

determined as being in excess of their requirements, and early EWMs such as Riverbank were founded with the explicit intent to sell water to help cover the costs of managing environmental water.²¹¹

There is an efficiency norm embedded in both the recovery of water for the environment (how much the environment should have, depending on the cost of the water and its alternate uses)²¹² and the management of the environmental water (to achieve the maximum environmental outcomes).²¹³ The capacity of the EWM to trade its water creates a direct link between the water recovery and management activities. Even where the EWM was not established with the intent to recover significant volumes of environmental water (which is the case with the VEWH), the combination of selling water to fund purchases of other water entitlements into the future means that all EWMs act in both water recovery and water management capacities. The capacity to use the market to manage water ‘puts the environment in a whole new field to be an active participant in a water market. It must communicate to the public what its objectives and outcomes are, and account for public money’.²¹⁴

In addition to being an active participant in the water market, the operation of EWMs as managers of water has also embedded the EWMs within the water resource management framework as water users. As part of a national workshop in 2013, two environmental water experts identified the resulting shift in the relationship between EWMs, irrigators and water corporations (including storage operators):

Environmental water holders within the Murray-Darling Basin have become the largest single owners of water entitlements. That means they are also the biggest customers of (state) water service providers, an important shift in the relationship dynamics in the water sector... No longer is the environment an interested observer through environmental groups and others providing comment from the sidelines. Through environmental water holders, the environment is now sitting around the table, inside the room as a partner in water delivery.²¹⁵

A frequent call amongst water users is for environmental water deliveries, based on held environmental entitlements, to be treated exactly the same as all other deliveries utilising water

²¹⁰ Victorian Environmental Water Holder, *Reflections: Environmental Watering in Victoria 2012-13* (State Government of Victoria, 2013).

²¹¹ *RiverBank Business Plan Part A*, above n 90.

²¹² Where this allocative efficiency is achieved using the market, it can be considered to reflect a Pareto optimality, see Lee S Friedman, *The Microeconomics of Public Policy Analysis* (Princeton University Press, 2002); Jeffrey M Perloff, *Microeconomics: Theory and Applications with Calculus* (Pearson, Pearson International Edition ed, 2008).

²¹³ See Chapter 2, 32.

²¹⁴ Interview OEH.

²¹⁵ Docker, above n 1, 5.

entitlements... the desire on all sides is for the environment to be seen as just another customer. The reality is that the environment is a very large customer with special needs, so the relationship with water corporations will need to be different to address these needs in comparison to a “standard”²¹⁶ consumptive user.

This is evidence of the tensions between the different ways in which the aquatic environment is constructed in law. Interestingly, the aquatic environment is now simultaneously both inside and outside the room. As an EWM, the environment is now *inside* the business of water management, and can participate in policy debates, and build relationships with other water users and water corporations. Even the framing of the aquatic environment as a ‘large customer with special needs’ reduces and constrains the aquatic environment within the water resource management framework, and is at odds with the broader legal constructions of the aquatic environment, which remain *outside*: an object which is affected by the acts of others, and a socio-ecological concept vulnerable to changing community values.

These tensions are already affecting the operation of the EWMs in environmental water management. For example, the narrow, identifiable construction of the EWM ensures that it can make decisions for which it can then be held to account. But in 2011, a review of the CEWH considered that the nature of the single person decision-maker isolated the CEWH from the interests of the broader community.²¹⁷ Although this review did not result in legal reform, the Commonwealth Environmental Water office was created to embed the decisions of the CEWH in a broader operating context.

The early years of the VEWH were also focused on using environmental water for ecological benefits, in accordance with its legislated objectives; but this narrow focus was not necessarily aligned with the socio-ecological concept of the environment in the communities of Victoria. For example, during 2011-13, locals from the Stawell area in western Victoria believed that the aquatic environment should include recreational values, and argued that environmental water should be used to maintain the lake levels

²¹⁶ Garry Smith, 'Discussion paper Topic 2: How Can, and How Should, the Environment Fit Within “Mainstream” Water Law and Policy Mechanisms?' (Paper presented at the Mainstreaming Environmental Water Law and Policy Workshop, Melbourne Law School, Centre for Energy, Resources and Environment Law, 2013, <<http://law.unimelb.edu.au/centres/creel/research/workshops>>), 1, 6.

²¹⁷ House of Representatives Standing Committee on Regional Australia, *Of Drought and Flooding Rains: Inquiry into the Impact of the Guide to the Murray-Darling Basin Plan* (Parliament of the Commonwealth of Australia, 2011).

to enable boating and other recreational activities.²¹⁸ The community (via the newly formed Lake Lonsdale Action Group) met with the Victorian Ministers for Water and Environment in an attempt to convince the Ministers to change the legislation and direct the VEWH on how to use its water. Whilst this was ultimately unsuccessful, and highlighted the desirability of the independence of the VEWH from Ministerial intervention, this example also highlights the tensions between the aquatic environment represented by the EWM and the other constructions of the aquatic environment in water law.

Whilst this outcome was a short-term victory in demonstrating the robustness of the newly created institution of the VEWH, it demonstrates a long-term problem by showing how the inconsistent constructions of the aquatic environment interact to generate conflict, and the vulnerability of all EWMs to changing community values.

IV. CONCLUSION

This chapter showed how the aquatic environment is constructed in the water law of south-eastern Australia. At the broadest level, the aquatic environment is recognized in water law as a socio-ecological concept, something that supports a range of socio-ecological and economic uses. Next, the aquatic environment has been translated as a legal object, making it visible to the law through the lens of managing use of water by legal subjects. Even where the environment was recognized as a user of water (such as in the New South Wales and Victorian legislation), this did not necessarily *create* legal rights for the aquatic environment. Lastly, the aquatic environment was created as a legal subject, which occurred in two phases: firstly, and indirectly, where the environmental water rights were created, but merely held by a government Minister. Although the Minister was indeed a legal person, the decisions on the use of the water were often obscured from the law as part of a broader policy position.²¹⁹ Secondly, and in response to the challenges of Ministerial management of environmental water, the EWMs were established within the water laws (or under other legislation, in order to hold water rights within water law frameworks) as legal persons with responsibility to hold and manage water for the environment.

²¹⁸ A number of articles were published in local and state papers, including an article on the front page of the Stawell Times-News, *Leave water in Lake Lonsdale* (21 August 2012).

²¹⁹ O'Donnell, 'New Victorian Environmental Water Holder', above n 102.

Australia's EWMs include a range of public and private organisations that have been accorded legal personality. Their operations include both recovery and management of environmental water, and they are obliged to meet specific objectives for improving aquatic environmental health and function. In undertaking these activities, the EWMs are altering their legal and social context, by changing public perceptions, and (indirectly) by altering legislation. This interaction demonstrates the tensions between the different constructions of the aquatic environment in water law. The EWMs are trying to maintain a delicate balance between retaining their 'special' nature as environmental organisations, whilst also framing themselves as just another user of water and participant in the water markets.

Australia's EWMs use their capacity for legal rights and duties primarily as a means to hold and manage water, giving them an entrée to both the water market and to policy debates on how to manage water resources (operationally and strategically). In Australia, the EWMs have embraced a narrative of being 'just another user' of water, which enables them to participate in water markets and act as a water customer. However, the EWMs of the second case study, in western USA, are much more likely to focus on collaboration with water users. They similarly rely on their legal personality to assist in the acquisition and management of environmental water rights, but continue to emphasise the co-existence of environmental flows and consumptive water use. Chapter 6 explores the EWMs of western USA, to see what happens when the aquatic environment is constructed as a legal subject in the context of prior appropriation water laws.

Chapter 6

Water Law and the EWMs of the Western USA (case study 2)

I. INTRODUCTION

After a century and a half of water policy and practice designed to promote water use by cities, farms and mines, most water has been claimed, leaving inadequate water for the West's fish and wildlife.¹

The environmental water managers (EWMs) of the western USA are part of a larger set of legal reforms to recognize and protect legal rights to water for the environment, and support the transfer of existing rights to water to environmental uses. The EWMs are organisations created to acquire and hold water rights on behalf of the aquatic environment.² This chapter presents the findings of the second of the two case studies, examining how the aquatic environment is constructed in water law, and the creation and operation of the EWMs, within the western USA.

The EWMs of the western USA aim to improve the health of aquatic ecosystems by increasing the volume of environmental water.³ To do so, this required not only the construction of the EWM as a legal person, but specific and targeted legal reform to recognize the aquatic environment as a beneficial use of water under prior appropriation water law frameworks.⁴ An additional consequence of prior appropriation is that all available water can be used, so the western states of the USA were faced with rivers that in some cases had been completely run dry,⁵ and had to find a way to insert the aquatic environment within the rights-based framework of prior appropriation.

As a result, this chapter shows that the processes of translation and personification of the aquatic environment within the US state water laws were much more closely linked

¹ Steven Malloch, *Liquid Assets: Protecting and Restoring the West's Rivers and Wetlands through Environmental Water Transactions* (Trout Unlimited, 2005), 4.

² Chapter 2, 41.

³ Chapter 2, 32-43.

⁴ A Dan Tarlock, 'Prior Appropriation: Rule, Principle or Rhetoric?' (2000) 76 *North Dakota Law Review* 881, 882.

⁵ The legal right to all available water included in a prior appropriation water right, even during drought, and at the clear expense of the health of the aquatic ecosystem, was re-affirmed recently as 1992 by the Montana Supreme Court in *Baker Ditch Co. v. District Ct.*, 824 P 2d 260 (Mont, 1992).

than they were in Australia. Enabling water law to 'see' the environment required that the environment itself was first *translated* as a beneficial use of water, either in its own right or as a proxy for various human uses that depend on environmental function (such as recreational fishing). However, for water to be used for environmental purposes, the water had to be appropriated *by someone* to protect the aquatic environment.

Recognising the environment as a beneficial use, and creating the capacity of the state to appropriate (effectively create) new water rights for the aquatic environment were part of the same set of legal reforms, and in most cases, occurred as part of the broader environmental law development during the 1970s and 1980s.⁶

However, in places where the existing water use had already dried up the stream, these legal reforms were of no help in restoring flows to the environment.⁷ Further legal reform was required to enable water rights to be transferred from existing users to *restore* instream flows, and these reforms finally established the aquatic environment as being able to hold water rights of the same value and type as those of any other user.⁸ Most of the western states now (1) recognize the aquatic environment as a beneficial use of water; (2) enable water to be appropriated to create new water rights for the aquatic environment; and (3) enable existing, senior water rights to be transferred to the aquatic environmental organisations to restore instream flows.⁹

Like Chapter 5, this chapter is a case study that draws on a legal analysis of statute and case law to identify and explore the way(s) that the aquatic environment is constructed in the water laws of the USA, and the specific legal form(s) and powers of the EWMs.¹⁰ This legal analysis is supported by a detailed review of the operations of the EWMs, based on their publicly available material (reports and webpages), and content analysis of detailed interviews with senior staff. The individualized nature of water rights in the

⁶ Oregon was the early mover, and introduced legislation to enable instream flow protection in 1955, followed by Washington in 1967; Lawrence J MacDonnell, 'Return to the River: Environmental Flow Policy in the United States and Canada' (2009) 45(5) *Journal of the American Water Resources Association* 1087, 1089.

⁷ See discussion of seniority in Chapter 6, 153, 164; see also Lawrence J MacDonnell, 'Environmental Flows in the Rocky Mountain West: a Progress Report' (2009) 9(2) *Wyoming Law Review* 335.

⁸ Again, Oregon was the early mover in this regard, enabling such transfers in 1987, with other states following suit over the next decade; Janet C Neuman, 'The Good, the Bad and the Ugly: the First Ten Years of the Oregon Water Trust' (2004) 83 *Nebraska Law Review* 432, 438.

⁹ Sasha Charney, *Decades Down the Road: an Analysis of Instream Flow Programs in Colorado and the Western United States* (Colorado Water Conservation Board, 2005), 11-12.

¹⁰ For case study methods, see Chapter 4.

western USA emphasises the human element in both protecting and recovering water for the environment, and the perceptions and beliefs of the EWM staff is a significant factor in shaping the activities and operation of the EWMs. The interviews provide essential insight into this process.¹¹

II. WATER LAW AND THE AQUATIC ENVIRONMENT IN WESTERN USA

The EWMs of the western USA construct the aquatic environment as a legal subject,¹² in the context of the overlapping patchwork of federal environmental laws and the state water laws of the western USA. Each state has its own body of water laws, created by a combination of statutory amendments to a common law prior appropriation framework, and these water laws are all slightly different.¹³ The overlay of federal environmental law is also important, as the federal *Endangered Species Act 1973* (ESA), for example, has stimulated significant investment in water recovery for the environment, and has been a catalyst for the creation and operation of some of the EWMs.¹⁴ This section provides an overview of the water law frameworks of the western USA, and examines the way that the aquatic environment is constructed at the intersection of state water law and federal environment law.

Before doing so, it is necessary to define the boundaries of the geographical case study. The model of acquiring environmental water rights from existing users to improve instream flows in the western USA has been in operation since 1994,¹⁵ and there are many EWMs operating at different spatial scales, ranging from the local (such as the Deschutes River Conservancy in Oregon), to the statewide (such as Freshwater Trust in Oregon), and the multi-state basin (such as the Columbia Basin Water Transaction Program). Chapter 2 identified the states in which the EWMs are operating within the USA, but for the purposes of this detailed analysis, it is necessary to limit the area of interest. This thesis focuses on the EWMs that are operating under the National Fish and Wildlife Foundation Western Water Program.

¹¹ See Chapter 4 and Appendix B.

¹² See Chapter 2, 44, and Chapter 3, 73.

¹³ Charney, above n 9.

¹⁴ For example the National Fish and Wildlife Foundation funds the Columbia Basin program which aims to recover water to protect, among other things, fish species listed as threatened under the federal *Endangered Species Act*, see Columbia Basin Water Transactions Program, *Annual Report Financial Year 2011* (National Fish and Wildlife Foundation, 2011).

¹⁵ Neuman, above n 8.

The National Fish and Wildlife Foundation (NFWF) is a non-government organisation that leverages funding from the federal government by finding private donors to match the federal funds.¹⁶ NFWF funds environmental water recovery and management through its Western Water Program, which includes investment in the Columbia, Colorado, and Rio Grande river basins, and the terminal Desert Lakes.¹⁷ The Columbia and Colorado River basins have been the focus of significant investment in EWM establishment and water recovery operations for over two decades; whereas water recovery in the Rio Grande and the terminal Desert Lakes is more ad hoc and often linked to land purchases.¹⁸ As a result, the analysis of this chapter will focus on the EWMs of two major transboundary river basins in the western USA: the Columbia River Basin (Figure 5),¹⁹ and the Colorado River Basin (Figure 6).²⁰

¹⁶ National Fish and Wildlife Foundation, *Who We Are* (2016) <<http://www.nfwf.org/whoweare/Pages/home.aspx#.Vu9fQ-J97IU>>.

¹⁷ National Fish and Wildlife Foundation, *Western Water Program* (2016) <<http://www.nfwf.org/wwp/Pages/home.aspx#.Vu9b2OJ97IU>>.

¹⁸ See National Fish and Wildlife Foundation, *Walker Basin Restoration Program* (2014) <<http://www.nfwf.org/walkerbasin/Pages/home.aspx>>; National Fish and Wildlife Foundation, *Desert Terminal Lakes Restoration Program* (2 July 2014) <<http://www.nfwf.org/dtl/Pages/home.aspx>>; National Fish and Wildlife Foundation, *Rio Grande Water Transactions Program* (archived) <<http://www.nfwf.org/archive/Pages/riogrande.aspx>>.

¹⁹ Figure attribution: Kmusser <<http://creativecommons.org/licenses/by-sa/3.0>> via Wikimedia Commons.

²⁰ Figure attribution: Shannon - Background and river course data from DEMIS Mapserver and The National Map, both public domain, GFDL, <<https://commons.wikimedia.org/w/index.php?curid=10183567>>.



Figure 5 Columbia River Basin

The Columbia River stretches from Canada, down through the states of Washington, Oregon, Idaho and Montana (with small areas crossing over into Wyoming, Utah and Nevada). The Columbia Basin has been extensively affected by the construction of multiple dams for flood control and hydropower, as well as extraction for irrigation in the more arid regions.²¹ In 2002, as part of a strategy to mitigate the effects of hydropower production on the health of aquatic ecosystems throughout the Columbia Basin, the Bonneville Power Administration partnered with NFWF to restore environmental flows in the Columbia River Basin.²² The Columbia Basin Water Transactions Program is the longest running of the NFWF programs, and provides insight into how the US EWMs operate to improve instream flows in a range of different state water laws. This thesis makes an original contribution to the existing scholarship

²¹ Neil E Ward and David L Ward, 'Resident Fish in the Columbia River Basin: Restoration, Enhancement and Mitigation for Losses Associated with Hydroelectric Development and Operations' (2004) 29 *Fisheries* 10.

²² Columbia Basin Water Transactions Program, above n 14.

on the EWMs of the Columbia Basin, which have been extensively examined as a mechanism for environmental water recovery.²³

The Colorado River is one of the best known transboundary river systems in the world, and has been much studied as an example of multi-jurisdictional water management.²⁴ The river basin extends across Wyoming, Colorado, Utah, Nevada, Arizona, California and New Mexico before crossing over into Mexico. A range of environmental water protection, and to a lesser extent, restoration programs operate in each of these states. Only very recently, a multi-government effort enabled water savings in the northern basin to be used to generate a significant environmental flow event in the Colorado River Delta in Mexico.²⁵ However, this thesis is focused on the specific organisations created to recover and manage water rights on behalf of the aquatic environment. As a result, despite the role of NGOs in facilitating this groundbreaking environmental flow event in the southern Colorado River,²⁶ it is beyond the scope of this thesis.

The state of Colorado was one of the earliest adopters of a comprehensive instream flows appropriation program, with the establishment of the Colorado Water Conservation Board in 1973, and continues to provide an interesting example of a judicial rather than permit-based water law administrative system.²⁷ In addition, Colorado is a jurisdiction in which the government and non-government EWMs have been aligned from the outset to work in partnership.²⁸ Including the State of Colorado provides a valuable point of difference in hydrology, water laws, and environmental water management to the Columbia Basin. However, the complicated nature of the interstate compacts and the treaty with Mexico are too complex to be dealt with in this project. For these reasons,

²³ Dustin Evan Garrick, *Water Allocation in Rivers Under Pressure: Water Trading, Transaction Costs, and Transboundary Governance in the Western USA and Australia* (Edward Elgar, 2015); D Garrick et al, 'Water Markets and Freshwater Ecosystem Services: Policy Reform and Implementation in the Columbia and Murray-Darling Basins' (2009) 69 *Ecological Economics* 366; Malloch, above n 1.

²⁴ Garrick, *Water Allocation in Rivers Under Pressure*, above n 23; see also Bureau of Reclamation, *Law of the River* (March 2008) Bureau of Reclamation, Lower Colorado Region <<https://www.usbr.gov/lc/region/g1000/lawofrivr.html>>.

²⁵ L W Daesslé et al, 'The 2014 Water Release into the Arid Colorado River Delta and Associated Water Losses by Evaporation' (2016) 542 *Science of the Total Environment* 586.

²⁶ A Dan Tarlock, 'Mexico and the United States Assume a Legal Duty to Provide Colorado River Delta Restoration Flows: An Important International Environmental and Water Law Precedent' (2014) 23(1) *Review of European Community & International Environmental Law* 76.

²⁷ Charney, above n 9, 7.

²⁸ Colorado Water Trust, *About Us* (2016) <<http://www.coloradowatertrust.org/about-us>>.

this thesis will focus on the EWMs of the Colorado River that operate within the state of Colorado.



Figure 6 Colorado River Basin

A. *Water law in Western USA: the Columbia River and Colorado*

In a sense, eastern systems were all cap and no tradable rights, whereas western systems were all tradable rights and no cap.²⁹

Unlike Australia, where water rights have a strong statutory basis going back over 100 years, water rights in the western USA are based on individual legal rights to water based on initial claims by individuals under the prior appropriations framework.³⁰ In addition, water rights in the western USA are legally based on the water that has actually been used (eg, the quantity extracted from the source, less any water returned to the source as drainage); this is significantly different to the Australian water rights, which only account for the quantity of water extracted from the source.

²⁹ C. Rose, 'From H₂O to CO₂: lessons of water rights for carbon trading' (2008) 50 *Arizona Law Review* 91, 94.

³⁰ Committee on Western Water Management, *Water Transfers in the West: Efficiency, Equity and the Environment* (National Academy Press, 1992), 70.

In the western USA, the water rights are use-based, and the state retains ownership of the water itself,³¹ although the role of the state in regulating the water rights largely consists of administering existing rights.³² Groundwater rights in the western USA are considered poorly defined and monitored, and still resemble an open access resource rather than one with defined property rights,³³ so the following discussion focuses on surface water rights.

The Columbia and Colorado River basins deal with the issue of a cap on water extraction quite differently, reflecting their different hydrology and water law frameworks. In the Columbia River Basin, a 'cap' on water use was usually the result of reaching the physical limit of water availability in a particular stream (which means streams run dry in summer).³⁴ In Washington and Oregon, state departments have attempted to cap some basins by placing a moratorium on new appropriations of water,³⁵ but state legislatures have demonstrated a willingness to overrule these 'caps' to ease development pressures.³⁶

In the Colorado River, limits on water extraction are set at a state and national level as part of the 1922 Interstate Compact and the 1944 Mexico-United States water treaty.³⁷ Each state has its own limits on use, and headwater states such as Colorado must pass a certain volume of water downstream. This difference affects the way environmental water is treated in each state too. As discussed below, when water is recovered for the environment in the western USA, it is typically left in stream, and is measured as a flow at a particular location. In the Columbia Basin, once these instream flows pass downstream, they may be accessed by other users (including the environment) until the Columbia enters the Pacific Ocean. In Colorado, however, increasing instream flows all the way to the state border may result in a net increase of water leaving the state of Colorado. The State of Colorado is unwilling to lose a potentially productive resource, so

³¹ Zachary Donohew, 'Property rights and western United States water markets' (2009) 53 *Australian Journal of Agricultural and Resource Economics* 85, 88.

³² Tarlock, 'Prior appropriation', above n 4, 881.

³³ R Glennon, *Water Follies: Groundwater Pumping and the Fate of America's Fresh Water* (Island Press, 2002).

³⁴ Bruce Aylward, *Water Markets: a Mechanism for Mainstreaming Ecosystem Services into Water Management?* (Briefing Paper, Water and Nature Initiative, IUCN, 2008).

³⁵ Amanda E Cronin and Lara B Fowler, *The Water Report #102: Northwest Water Banking* (Envirotech Publications, 2012).

³⁶ Kelly Mistry, 'Columbia River Flows to be Protected' *Centre for Environmental Law and Policy* (online) <<http://www.celp.org/tag/celp/>>.

³⁷ Tarlock, 'Mexico and the United States Assume a Duty', above n 26.

environmental water recovery in Colorado often results in an improved flow at a specific location, and followed by the trade of the improved flow right to another user further downstream. A Colorado Water Trust staff member stated:³⁸

If we acquire water permanently and change it into instream flow, we will as a policy, look to see if we can re-use water as a consumptive flow after it meets the instream needs. For example, there might be a seven mile stretch that is totally dry and we want the water back in it, but at the bottom of this reach, return flows or another tributary comes in and the river is in great shape below this point. If this happens, we may seek to remarket the historical consumptive use to a downstream user...We try to do a holistic project, with the most uses wrung out of a single drop of water.³⁹

Although the precise legal nature of water rights varies from state to state, surface water rights in the states of the Columbia and Colorado Basins have four legal features in common.⁴⁰ Firstly, the states apply the prior appropriation rule: the first person to divert the water has the highest claim to it.⁴¹ This means that the earliest user has the first right to extract their share of the available water, before the next most senior right can take their share, 'no matter what their need'.⁴² Secondly, prior appropriation hinges on a diversion for the purposes of a *beneficial use*, which requires that the water is actually used on land, and does not re-enter the stream (via drainage or groundwater). This, in combination with the variation in stream flow volumes available in any given year, is often referred to as the difference between 'paper' water (water that has been claimed under prior appropriation) and 'wet' water (water that is physically available, and where the legal ownership rights have been established).⁴³ Typically, the more senior the water right, the more likely it is to be 'wet' water, although in all cases, this will require a demonstration that all the water claimed has in fact been used.⁴⁴ Thirdly, although prior appropriation water rights are theoretically tradeable, all states require that any transfer comply with the no injury rule, which means that changes in the location or use of the

³⁸ For details on the methods of the interviews, see Chapter 4.

³⁹ Interview CWT.

⁴⁰ One notable exception to this is California, which continues to recognize riparian rights as well as prior appropriated rights, a combination of legal rights to water that can create significant uncertainty around water property rights and impede water transfers, see J Carey and D L Sunding, 'Emerging markets in water: A comparative institutional analysis of the Central Valley and Colorado-Big Thompson projects' (2001) 41 *Natural Resources Journal* 283.

⁴¹ Tarlock, 'Prior Appropriation', above n 4; this is very different to the Australian statutory water law frameworks where water access licences are grouped into 2-3 classes of reliability (Chapter 5, 110).

⁴² MacDonnell, 'Rocky Mountain West' above n 7, 335.

⁴³ R Howitt, 'Spot prices, option prices, and water markets: an analysis of emerging markets in California' in K. Easter, M. Rosegrant and A. Dinar (eds), *Markets for Water: Potential and Performance* (Kluwer Academic Publishers, 1998) 119.

⁴⁴ Donohew, above n 31.

water must not impact other water users, and must be assessed (by a state administrator or a court) to confirm this.⁴⁵ This confirmation must assess the volume of water that has actually been put to beneficial use, to ensure that any transfer does not remove water that would have made its way to other users. Finally, as part of the beneficial use requirement, many states also enforce a 'use it or lose it' clause: if water is left unused in the river for a certain period, it can be considered as relinquished by the original holder of the right.⁴⁶

In each state, water rights are typically grouped into particular time periods, reflecting the evolution of water law from the free-for-all of the original diversions, to the more well-documented rights granted under the early statutory procedures (typically the late 1800s to the early 1900s), to the most modern (and junior) water rights, often belonging to the environment, and the result of statutory amendments to recognize various instream uses.⁴⁷ The evolution of water law in each state means that some water rights are well-defined, and others reflect a historical usage that may not be clearly stated. The situation has been complicated in many states by two other factors: the federal land reserves, and the recognition that Indian tribes have also been using water since before colonization.⁴⁸ In response to a number of high profile, controversial cases that firmly established the priority of senior rights (and gave short shrift to more recent users),⁴⁹ in the 1970s and 1980s, most of the western states began formal processes of adjudicating the rights to water, based on historical use. These adjudication processes did not

⁴⁵ Committee on Western Water Management, above n 30, 73-76.

⁴⁶ For example, the state of Washington imposes a five year relinquishment clause. Water that is left instream for five years will be forfeited; see Malloch, above n 1, 102. Colorado, on the other hand, has a 10-year forfeiture period (Donohew, above n 31, 90), and states usually offer forfeiture protection in the case of drought or where provision has been made to leave the water instream for environmental purposes, see for example Oregon Water Resources Department, *Water Rights in Oregon: An introduction to Oregon's Water Laws* (2013) <<http://www.oregon.gov/owrd/PUBS/docs/aquabook2013.pdf>>, 35.

⁴⁷ See, for example, the instream flows recognised as part of the federal reserves, in Patrick A Byorth, 'Conflict to Compact: Federal Reserved Water Rights, Instream Flows and Native Fish Conservation on National Forests in Montana' (2009) 30 *Public Land and Resources Law Review* 35.

⁴⁸ In the Klamath Basin in Oregon, the court held that the Klamath Tribe had a priority date for the water rights necessary to support hunting and fishing of 'time immemorial', making their water rights the most senior in the basin, *United States v. Adair*, 723 F.2d 1394, 1414 (9th Cir. 1984).

⁴⁹ See particularly, *Winters v United States* 207 U.S. 564 (1908), which established that the federal reservation had intended to include a volume of water sufficient to achieve the intent of the reservation. *Arizona v. California*, 373 U.S. 546 (1963) affirmed *Winters*, and set the stage for further legal challenges. *Cappaert v. United States* 426 U.S. 128, 133 (1976) later explicitly rejected the requirement for a court to balance the equities, and only required consideration of the date of the prior appropriation.

overturn the prior appropriation rule, but created a process to formally determine the legal nature of all water rights in a given basin, including the volume and priority of each right.⁵⁰ These adjudication processes are extremely long and costly, and many are still ongoing.⁵¹ Without a complete adjudication, to comply with the no-injury rule, a water right holder must be prepared to establish the date of earliest usage and ongoing usage volumes. This becomes critical when seeking to enforce a right to water (for example, if a water right holder believes that another user is taking water to which they have no right), or when selling a water right to another user.

1. *Water Markets in the Western USA*

One of the ways that an EWM can obtain senior water rights is to purchase them from another user. Unlike Australia, where water markets are highly active and relatively straightforward for the environment to access, water markets in the western USA are more fragmented, with fewer buyers and sellers, and individual transactions can take a long time, all of which increase transaction costs.⁵²

Water trade rules vary from state to state, and region to region. At one end of the spectrum, the Colorado-Big Thompson water market is considered highly active, constituting over 70% of trades in the western USA from 1987-2007.⁵³ Institutionally, water rights in this location are relatively well-defined and trades are facilitated by water brokers and there are publicly available water prices.⁵⁴ Many of the other markets throughout the western USA are relatively thin, with only small numbers of sales and leases in any given year. Brewer's analysis of the *Water Strategist* data from 1987-2005 shows that the total number of transactions (sales, short-term leases and long-term leases) for Colorado was only 1707, and with only 3232 transactions in total across the 12 most active state water markets.⁵⁵ As a comparison, in 2011-12 alone, Australia recorded

⁵⁰ John E Thorson et al, 'Dividing Western Waters: A Century of Adjudicating Rivers and Streams, Part II' (2006) 9(2) *Water Law Review* 299.

⁵¹ For example, the Klamath Basin adjudication in Oregon completed the first phase in 2013, after 38 years of data collection and fact finding. The second phase of this process is now underway, with a review by the courts, see Oregon Water Resources Department, *Klamath River Basin Adjudication* (28 February 2014) <<http://www.oregon.gov/owrd/Pages/adj/index.aspx>>.

⁵² Garrick, *Water Allocation in Rivers Under Pressure*, above n 23.

⁵³ Donohew, above n 31, 96.

⁵⁴ Carey and Sunding, above n 40, 284.

⁵⁵ Jedidiah Brewer et al, '2006 Presidential Address Water markets in the west: prices, trading, and contractual forms' (2008) 46(2) *Economic Inquiry* 91, 108. This dataset does not contain all water trades, but is the only easily accessible data for analysis.

over 7000 trades of water access entitlements, and more than 12000 trades of water allocation.⁵⁶ Although water markets appear to be growing across the western USA, they are still relatively inactive when compared to Australia. The US water markets struggle to meet Tan's four fundamentals: (1) many buyers and sellers; (2) mobile resources; (3) reliable and adequate information; and (4) well-defined, largely homogenous water rights.⁵⁷

Water rights in both the Colorado and the Columbia basin generally suffer from poor definition, both legally and practically. As discussed above, all water rights must be defined based on actual consumption, not merely water diverted, and in the absence of a completed adjudication process, any proposed transfer will require an assessment to determine the volume that has been actually consumed. This assessment can be expensive and time-consuming, adding cost and delay to water transfers. To overcome this, some states have employed a streamlined approvals process for short-term (one year or less) transfers, by ensuring that at the end of the lease period, the water right reverts to its original owner.⁵⁸ However, longer term transfers are still frustrated by this process.

The requirement to undertake the assessment of historical use also exposes potential traders to the possibility of forfeiture: the assessment may well determine that they have not in fact used their full water entitlement during the forfeiture period. Even commencing a potential trade can come with substantial risk, particularly in locations where water rights have not been through the complete adjudication of historical use. This cost, delay, and risk of forfeiture combine to reduce the potential sellers in the market, and means that water rights that are difficult to transfer between locations and uses.

The nature of water rights under prior appropriation also means that there is great diversity in the nature of these water rights. Each water right is defined at a point in time, and further by the relative seniority in a particular location: the right to water is defined by the dates of other users, so even knowing the specific date of a water right is

⁵⁶ National Water Commission, *Australian Water Markets Report 2011-12* (NWC, 2013), 37-40.

⁵⁷ Poh-Ling Tan, 'A Property Framework for Water Markets: The Role of Law' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar, 2005) 56; D E Fisher, 'Markets, Water Rights and Sustainable Development' (2006) 23 *Environmental and Planning Law Journal* 100; D E Fisher, 'Rights of Property in Water: Confusion or Clarity' (2004) 21 *Environmental and Planning Law Journal* 200.

⁵⁸ Donohew, above n 31.

not enough on its own to know whether it is a senior right or not. Water rights in the Columbia Basin are particularly heterogenous, defined by a range of dates and locations of use, making it difficult to identify a market price for water. In the Colorado, the situation is better in some reaches (especially the Colorado-Big Thompson, where water rights are much more homogenous),⁵⁹ but still challenging in the upper reaches of the Colorado River and its tributaries.

Finally, there is often difficulty in finding information on water prices and potential buyers and sellers, and there is no single location where details of trades are routinely updated.⁶⁰ This difficulty reduces the potential buyers, by creating uncertainty in the market price of water. In response, individual states such as Washington have created water banks and water market places to help facilitate water markets, and this situation is continuing to slowly improve.⁶¹

In sum, water markets in the Columbia and Colorado Basins tend to be spatially (and often sectorally) fragmented, water trades are typically slow (often taking multiple years to complete), and water rights are still frequently poorly defined and largely heterogeneous.⁶² Interestingly, it is the EWMs who are often driving the development of water markets as a means to access senior water rights for the environment, positioning themselves as both participants in water markets, and agents of policy reform.⁶³

B. *Constructing the Aquatic Environment in Western USA Water Law*

In the western USA, environmental considerations in state water law extend back to the early 1900s, when the iconic waterfalls in the Columbia River Basin in Oregon received

⁵⁹ Carey and Sunding, above n 40.

⁶⁰ Donohew, above n 31; Kristiana Hansen, Richard Howitt and Jeffrey Williams, 'An Econometric Test of Water Market Structure in the Western United States' (Paper presented at the Allied Social Science Association Annual Meeting, Chicago, IL, 2012); R Howitt and K Hansen, 'The Evolving Western Water Markets' (2005) 20(1) *Choices* 59.

⁶¹ For example, Washington State has established water banking programs, where water rights can be stored to avoid forfeiture and to enable potential buyers and sellers to find each other. Environmental water trusts are also facilitating markets by assisting with the assessment process before approaching the state regulator, see Malloch, above n 1.

⁶² R. Quentin Grafton et al, 'An Integrated Assessment of Water Markets: A Cross-Country Comparison' (2011) 5(2) *Review of Environmental Economics and Policy* 219; Brandon Scarborough, *Environmental Water Markets: Restoring Streams Through Trade* (Property and Environment Research Centre, 2010); Thomas Garry, 'Water Markets and Water Rights in the United States: Lessons from Australia' (2007) 4 *Macquarie Journal of International and Comparative Environmental Law* 23.

⁶³ Scarborough, above n 62; Malloch, above n 1.

legal protection.⁶⁴ However, the environment's need for water has, in general, been poorly articulated in law until relatively recently. Understanding the legal challenges for environmental water in the western USA requires the acknowledgement of two key issues affecting water law in the USA. Firstly, the states retain responsibility for laws defining use and access to water for consumptive purposes in the USA. There is no overarching intergovernmental agreement on the nature of water rights and the management of water resources (as there is in Australia). Each of the western states therefore has a unique set of legal definitions and principles around the use of environmental water.⁶⁵ Although the Colorado River has an interstate compact setting water sharing rules at the bulk level,⁶⁶ no such agreement is in place on the Columbia Basin.⁶⁷ Secondly, the capacity to allocate water to the aquatic environment has been limited by (1) a historical refusal to acknowledge the aquatic environment as a 'beneficial use' of water, and (2) the prior appropriation doctrine. The combined effect of these two legal rules effectively excluded the environment from the water law framework, and overcoming this hurdle required substantial legal reform.

In both the Columbia and the Colorado Basins, environmental water is referred to as 'instream flows', reflecting the nature of the beneficial use *in stream* (rather than being extracted for use on land). Various statutes distinguish between minimum flows, instream flows or lake levels as mechanisms for setting aside water for environmental purposes, and may treat the instream flows as slightly different legal rights to water rights held for consumptive purposes.⁶⁸ The following discussion draws on the conceptual framework in Chapter 3 to identify the ways in which the aquatic environment is constructed in water law.

1. *Recognising the Aquatic Environment: a Beneficial Use*

The prior appropriation water law frameworks in the western USA reflect a frontier mentality, and supported the extraction and use of water to generate economic return,

⁶⁴ David M Gillilan and Thomas C Brown, *Instream Flow Protection: Seeking a Balance in Western Water Use* (Island Press, 1997).

⁶⁵ Malloch, above n 1, 26.

⁶⁶ See discussion in Tarlock, 'Mexico and the United States Assume a Legal Duty', above n 26.

⁶⁷ Thorson et al, above n 50.

⁶⁸ Charney, above n 9.

so the first to claim and use water had the best right to it.⁶⁹ Leaving water in the river was historically viewed as a waste of a valuable resource, and it wasn't until rivers began running dry, and fish populations began to collapse, that there was real change in attitudes.⁷⁰

In changing the state laws to recognize instream flows, the states had to first overcome the beneficial use doctrine, and recognize the environment as a 'beneficial use' of water without requiring a diversion of water from the river. The states of the Columbia Basin and Colorado passed statutes to recognize the environment as a beneficial use of water and enabled water to be left in stream for this purpose.⁷¹ States could then create rights for the environment within the prior appropriation framework. Oregon was the first state to establish an instream flows protection program in 1955, followed by Washington in 1967. As the environmental movement grew during the 1970s and 1980s, most of the remaining western states enacted instream flows provisions.⁷²

Each state defines instream flows slightly differently, and the recognized purpose(s) for appropriating an instream flow are also highly variable.⁷³ In addition, water appropriated for environmental uses must be reasonable for the specific purpose(s) identified in the statute.⁷⁴ Common purposes for instream flow protection include maintaining water quality, or protection of fish and other aquatic species, often to support recreational uses such as angling (see Table 10). Although water law remains the responsibility of the states, the federal *Endangered Species Act* also creates an obligation to protect habitat of threatened species, which has been interpreted as creating an additional purpose for instream flows. For example, threatened species affected by the operations of the Bonneville Power Authority helped give rise to the Columbia Basin Water Transactions Program, which aimed to recover sufficient environmental water to protect the habitat of the listed species. State laws also distinguish between using instream flows to *maintain* or *improve* environmental condition (Table 10). This is an important distinction, as a

⁶⁹ MacDonnell, 'Return to the River' above n 6; A Dan Tarlock, *The Law of Water Rights and Resources* (West Publishing, 2008).

⁷⁰ Jesse A Boyd, 'Hip Deep: A Survey of State Instream Flow Law from the Rocky Mountains to the Pacific Ocean' (2003) 43 *Natural Resources Journal* 1151.

⁷¹ Ibid.

⁷² See discussion in MacDonnell, 'Return to the River' above n 6.

⁷³ Charney, above n 9.

⁷⁴ MacDonnell, 'Return to the River' above n 6, 1090; MacDonnell, 'Rocky Mountain West' above n 7, 339-340.

maintenance goal effectively limits the appropriation of instream flows to that required to maintain the current state of the aquatic ecosystem. In highly degraded rivers, limiting water recovery in this way prevents the rivers from recovering health and function.

In both the Columbia and the Colorado Basins, the aquatic environment is now recognized in statute as a beneficial use of water. This recognition focuses on the need for healthy aquatic environments to support a range of human uses, and constructs the aquatic environment in water law as a socio-ecological concept. Interestingly, although this recognition required specific legal reform, this reform merely framed the environment as a legally acceptable *use* within the water law framework. The essential nature of the water law framework as a mechanism for managing use of a resource remained unchanged, although water may now be appropriated for the aquatic environment.

2. *Translating the Aquatic Environment: a Legal Object/Subject Hybrid*

Once instream flows for the environment were legally recognized as a beneficial use of water, each state undertook a process of appropriating water to provide these instream flows. This process effectively translated the environment into a legal object, which limited the way that water was used by others.⁷⁵

The translation of the environment as a legal object in US water law has occurred in two distinct ways. Firstly, the environment is translated as an object via the operation of the *Endangered Species Act*, which creates an obligation to protect the habitat of threatened species. Although state water laws do not specifically engage with the federal *Endangered Species Act*, it is used by the courts to compel water resource managers to change the way they use water.⁷⁶ As a result, environmental considerations can significantly affect existing consumptive water rights, even though the aquatic environment itself (in this case, defined as the threatened species' habitat) remains only obliquely visible to water law.

Secondly, this translation has occurred as a practical outcome of the operation of western US water law. Early instream flow protections were created as rules that limited

⁷⁵ For more on the process of translation into a legal object, see Chapter 3, 69.

⁷⁶ Holly Doremus and A Dan Tarlock, 'Fish, Farms and the Clash of Cultures in the Klamath Basin' (2003) 30 *Ecology Law Quarterly* 279.

existing users' access to water. However, the water law frameworks of the western states emphasise private rights to water, so early rules-based forms of instream flows were later converted ('appropriated') to private water rights. For example, in Oregon, the instream flows were initially established under the 1955 legislation as rules that protected minimum flows in the system, by requiring existing users to cease water extraction once flows dropped below a minimum threshold. These rules were then converted to appropriated water rights under legislation passed in 1987.⁷⁷

State water laws continue to distinguish between 'appropriating' and 'acquiring' instream flow rights (which is discussed below). Appropriation of an instream flow is the creation of a new water right, and requires that some water is present in the river system to support the instream flow appropriation.⁷⁸

In a formal sense, the appropriated instream flows, even when they are the most junior (and thus most vulnerable) rights on the system, are still explicit legal rights. These water rights are *formally* identical to those of other water users, with a specific seniority, purpose and location of 'use'. However, the states generally place limits on the ways in which the instream rights can be appropriated, held and dealt with that do not otherwise affect consumptive water rights (see Table 10).⁷⁹ Further, the instream flow rights are usually the most junior rights on the system, and appropriation of instream flows often acts as a limit on future water resource development in a particular basin, as any water rights appropriated after that can only be met once the instream flow is provided. Finally, appropriation of instream flows is often limited to maintenance of aquatic health, a protective function that attempts to place limits on water resource development. As a result, although the appropriated water rights for instream flows are as legible and directly 'visible' to water law as the rights of any other user, in practice, the combination of the specific legal limits on their creation and management, combined with their junior nature, means that they are intended to operate more like limits on other water users' rights, rendering them more akin to a legal object.⁸⁰

In this case, although the formal legal distinction between the legal object and legal subject are blurred by the appropriation of legal rights to water for the environment, it is

⁷⁷ Charney, above n 9.

⁷⁸ Ibid.

⁷⁹ For example, there are often limits on who can hold the instream flow right, as well as the purpose for which it can be used.

⁸⁰ For more details on the nature of a legal object, see Chapter 3, 69.

the intent of the legislature and the government agencies responsible for the appropriation that is especially important. In the Columbia and Colorado, the instream flow rights have been appropriated as part of broad government programs to constrain development of water resources within the boundaries of sustainability. The use of the legal water rights themselves reflects the real challenge of trying to protect the environment from within a system of law so focused on regulating the *use* of water resources. The attempt to limit the use of water, and protect the environment, by creating these limited legal rights to water for the environment results in a legal object/subject hybrid.

Recognising the environment as a beneficial use and appropriating instream flow rights was a significant step. However, in over-appropriated rivers, there may be no water left to appropriate for instream flows.⁸¹ Even when instream flows have been appropriated, they are often the most junior water rights.⁸² As a result, in dry years, rivers may still run dry, despite the appropriation of instream flow rights.⁸³ To actually improve aquatic environmental health, a further legal construction is necessary.

3. *Legal Rights and Personhood for the Aquatic Environment*

To provide instream flows that improved environmental condition and adequately maintained existing condition during low flow periods, it was necessary to find a way to access the more senior water rights in the river. There are two ways this could happen: by reducing existing appropriations of water to recognize a new ‘senior’ instream water right (a controversial and deeply unpopular option),⁸⁴ or by purchasing such water rights from existing users. In the Columbia and Colorado Basins, the environment needed a

⁸¹ In some cases, where all available water has already been appropriated by other users, it will not be possible to even allocate water to the environment at all, see for example, Idaho Water Resource Board, *Idaho Minimum Stream Flow Program* (Idaho Department of Water Resources, 2013) (*Idaho Minimum Stream Flow Program*).

⁸² MacDonnell, ‘Return to the River’, above n 6, MacDonnell, ‘Rocky Mountain West’, above n 7, Malloch, above n 1.

⁸³ MacDonnell, ‘Return to the River’, above n 6, 1091.

⁸⁴ This situation occurred in the Klamath Basin in Oregon, when the Bureau of Reclamation acted to protect the habitat of threatened fish species, which had the effect of dramatically reducing water allocations to existing irrigators, and creating a ‘fish versus farms’ mentality, see Holly Doremus and A Dan Tarlock, *Water War in the Klamath Basin: Macho Law, Combat Biology and Dirty Politics* (Island Press, 2008).

water market, and in many cases, providing environmental water was a key driver in the creation of such markets.⁸⁵

Senior rights are usually expensive and difficult to obtain (as discussed above, water transactions in the western USA can be longwinded and costly), but are more likely to provide the necessary flows in water scarce systems. Senior water rights acquired from existing users retain their legal features (most importantly, their original prior appropriation date), and are both formally and practically identical to other users' rights to water. These senior water rights mean instream flows can have the same set of legal rights as any other water user. However, obtaining these senior water rights requires the further construction of an entity with the legal power to acquire existing water rights.

State water laws explicitly enable the acquisition of instream flows under particular conditions, which include limits on who can hold such rights once they have been formally converted to an instream right (see Table 10). However, because these rights are acquired from existing users, in all cases any individual or organisation can undertake the acquisition process, although they may need to transfer the rights to another organisation for formal conversion to instream flows. For example, in Colorado, only the Colorado Water Conservation Board (CWCB) may legally hold the instream flow rights. The CWCB can acquire existing water rights and convert them to instream flow rights. To do so, this agency works in partnership with a private organisation, the Colorado Water Trust, who can identify potential water rights that may be available for sale and complete the commercial transaction, before they donate the water rights to the CWCB for official conversion to instream flows.⁸⁶ In Montana, on the other hand, the rules of ownership are more relaxed: the state agency or private organisations may hold the instream flow rights, but these rights are only available for a limited term lease (up to 20 years).⁸⁷ In Washington, the state government has provided another alternative: individual users' water rights may be 'banked' with the state agency (Department of Ecology), which protects them from relinquishment, and which can also enable them to

⁸⁵ Malloch, above n 1; Janet C Neuman and Cheyenne Chapman, 'Wading into the Water Market: the First Five Years of the Oregon Water Trust' (1999) 14 *Journal of Environmental Law and Litigation* 135; John J Ferguson, Barbara Chilcott Hall and Brianna Randall, 'Private Water Leasing: Working Within the Prior Appropriation System to Restore Streamflows' (2006) 27 *Public Land and Resources Law Review* 1.

⁸⁶ Malloch, above n 1, 52.

⁸⁷ *Ibid*, 61.

be used as instream flows.⁸⁸ The Department of Ecology also works closely with the Washington Water Trust, who may acquire a right from an existing user before banking that right with the Department. In all cases throughout the Columbia and Colorado Basins, state agencies work closely with private organisations and individuals to obtain senior water rights through voluntary transactions (sale or donation) for the purposes of instream flows. This process is not easy, and shepherding potential sellers through the transaction process, whilst maintaining goodwill towards environmental water recovery, forms a large part of the work of the EWMs in these basins.

In summary, the aquatic environment is constructed in the three ways identified the conceptual framework developed in Chapter 3. The states have *recognized* the aquatic environment as a beneficial use (a socio-ecological concept), and *translated* the environment into a legal object via setting limits on others' use, including the appropriation of new junior water rights that act as a cap on future water allocations (although this formally creates a legal object/subject hybrid). Finally, the aquatic environment is personified by establishing the EWMs to acquire existing senior water rights through purchase, donation or water savings. Each of these steps is dependent on particular elements of legal reform at both the federal and state levels across the western USA (Table 10).

Table 10 Constructing the environment in western USA water law: recognition, translation and personification

State	Recognition: instream flow purpose	Translation: appropriation and closing of basins to future appropriation (capping)	Personification: acquisition and water banking
Federal	N/A ⁸⁹	<i>Clean Water Act</i> (which creates an obligation to maintain water quality) and <i>Endangered Species Act</i> (which creates an obligation to protect habitat of threatened species), by altering existing water management where necessary. ⁹⁰	N/A ⁹¹

⁸⁸ Ibid, 102.

⁸⁹ Federal law does not include instream flows.

⁹⁰ The legal authority stems from *Riverside Irrigation District v Andrews* 758 F.2d 508 (10th Cir. 1985) (for the *Clean Water Act*) and *O'Neill v U.S.* 50 F.3d 677 (9th Cir. 1995), which held that an irrigator's water rights must yield to the obligations under the *Endangered Species Act*, and which

State	Recognition: instream flow purpose	Translation: appropriation and closing of basins to future appropriation (capping)	Personification: acquisition and water banking
Montana	Beneficial use includes fish and wildlife, and recreational uses. ⁹² However, water quality can only be protected through reservation of instream flows, ⁹³ and any acquired instream flows must be for the benefit of the fisheries resource. ⁹⁴	Instream flows can be created through reserves, and these reserves can be applied for by a range of state agencies, including Fish, Wildlife and Parks. ⁹⁵	Any individual or corporation, or the Montana Department of Fish Wildlife and Parks can temporarily change an appropriation right to to “maintain or enhance instream flow to benefit the fishery resource.” ⁹⁶
Oregon	Protected uses include: ‘fish life, wildlife, fish and wildlife habitat’, ‘water quality standards’, and ‘recreation and scenic attraction’. ⁹⁷	The Department of Fish and Wildlife, the Department of Environmental Quality and the State Parks and Recreation Department can apply for new instream water rights, which are then are held in trust by the Water Resources Department. ⁹⁸	‘Any person may purchase or lease all or a portion of an existing water right or accept a gift of all or a portion of an existing water right for conversion to an in-stream water right.’ ⁹⁹ However, once acquired for the purpose of instream flows, these water rights are held in trust by the Water Resources Department. ¹⁰⁰
Washington	‘The department of ecology may establish minimum water flows or levels... for the purposes of protecting fish, game, birds or other wildlife resources, or recreational or aesthetic values of said public waters... [or] necessary to preserve water quality’. ¹⁰¹	Washington State Department of Ecology can appropriate instream flows via administrative procedures to establish base flows in all perennial streams (which can include closing catchments to future appropriations and imposing minimum flow limits on other users). ¹⁰²	Individuals can transfer (permanently or temporarily) water rights to the State via the Trust Water Program, which protects the water rights against relinquishment under the ‘use it or lose it’ requirements.
Idaho	Instream flow is a beneficial use to maintain	Anyone can petition the Idaho Water Resources	Acquisition of existing water rights remains

was affirmed in *Klamath Water Users Protective Association v Patterson* 204 F.3d 1206 (9th Cir. 1999).

⁹¹ Federal law does not include instream flows.

⁹² Mont Code Ann § 85-2-102(4).

⁹³ Mont Code Ann § 85-2-316(1).

⁹⁴ Mont Code Ann § 85-2-408.

⁹⁵ Mont Code Ann § 85-2-316.

⁹⁶ Mont Code Ann §§ 85-2-436, 85-2-439, 85-2-408.

⁹⁷ Or Rev Stat § 537.336.

⁹⁸ See Or Rev Stat §§ 537.332-537.343 for a summary of the procedures.

⁹⁹ Or Rev Stat § 537.348.

¹⁰⁰ Charney, above n 9, 112-3.

¹⁰¹ Wash Rev Code § 90.22.010.

¹⁰² Wash Rev Code § 90.54.020.

State	Recognition: instream flow purpose	Translation: appropriation and closing of basins to future appropriation (capping)	Personification: acquisition and water banking
	'minimum stream flows required for the protection of fish and wildlife habitat, aquatic life, recreation, aesthetic beauty, transportation and navigation values, and water quality'. ¹⁰³	Board to file application for instream flow water right, but only the Idaho Water Resources Board can hold that right. ¹⁰⁴	unclear, except in the Lehmi River, where a water bank was created to enable an instream flow appropriation in a fully appropriated river. ¹⁰⁵
Colorado	'recognizing the need to correlate the activities of mankind with some reasonable preservation of the natural environment... [beneficial use includes] minimum stream flows or for natural surface water levels or volumes for natural lakes to preserve the natural environment to a reasonable degree'. ¹⁰⁶ Instream flows have been appropriated for fisheries, riparian habitat and other aquatic organisms. ¹⁰⁷	Colorado Water Conservation Board may appropriate such waters as needed to meet the minimum instream flow needs to maintain the aquatic environment. No other person may appropriate instream flows. ¹⁰⁸	Colorado Water Conservation Board may receive acquisitions for the purpose of conversion to instream flows to improve the aquatic environment. No other person may convert existing rights to instream flows.

Table 10 provides a detailed summary of how the aquatic environment has been recognized, translated and personified in the water laws of each jurisdiction. The next section identifies and describes the organisations responsible for holding the instream flow rights, the western USA EWMs, including their capacity to claim legal personhood, and the legal foundation for their water management activities.

III. THE ENVIRONMENTAL WATER MANAGERS OF WESTERN USA

The EWMs are identifiable organisations with legal personality, and the objective to improve the health of aquatic ecosystems by increasing instream flow rights.¹⁰⁹ The EWMs operate in a historical context of significant environmental litigation in the

¹⁰³ Idaho Code Ann § 42-1501.

¹⁰⁴ Idaho Code Ann § 42-1504.

¹⁰⁵ Charney, above n 9, 85.

¹⁰⁶ Colo Rev Stat § 37-92-102(3).

¹⁰⁷ Charney, above n 9, Table 5.

¹⁰⁸ Colo Rev Stat § 37-92-102(3).

¹⁰⁹ Chapter 2, 41.

western USA, as well as highly variable water availability, water market functionality and changing socio-ecological values.

A. *Legal Form: How are the EWMs Constructed in Law?*

There are two organisational forms of EWMs in the USA (see Tables 11 and 12). Firstly, there are the state government bodies with statutory responsibility for appropriating, holding (and sometimes, acquiring) instream flows. In the Columbia and Colorado Basins, each state government has an organisation legally recognized as responsible for holding instream flows. Secondly, there are the non-government organisations who work in partnership with the state agencies. These organisations range in scale, from national organisations such as the National Fish and Wildlife Foundation, to local grassroots organisations such as the Deschutes River Conservancy. Both the state agencies and the NGOs often have a range of objectives beyond just water recovery for the environment, and their capacity to be sufficiently identifiable as an EWM is not always straightforward.¹¹⁰

As discussed above, the government EWMs are usually those with statutory responsibility for appropriating instream flows, and they have specific legal personhood powers to enable them to hold the water rights (see Tables 11 and 12). For example, Washington's Department of Ecology includes the Trust Water Program, a public trust to hold the water for beneficial use, ensuring that the water can remain instream without being relinquished for non-use.¹¹¹ In Colorado and Idaho, the instream flow rights are held by water boards, which have clear identities but a multitude of objectives (see Table 13). The government EWMs play a significant role in the appropriation of instream flow rights as part of broader water policy and planning, but their role in the acquisition of instream flow rights is largely limited to being the recipient of acquired water rights.

The government EWMs are typically large organisations with multiple policy objectives and responsibilities. However, these EWMs retain sufficient identifiability by virtue of their explicit statutory responsibilities for holding the instream flow rights, and the nature of instream flow rights as legal rights to water. Each government EWM can be identified within the government department, and websites typically provide contact details for the relevant person responsible for the program. As a result, they can be held

¹¹⁰ For the importance of identifiability, see Chapter 2, 41.

¹¹¹ Department of Ecology, State of Washington, *Water Market* (3 February 2012) Water Resources <<http://www.ecy.wa.gov/programs/wr/market/market.html>>.

accountable by the public for both the quantity of instream flow rights in a particular river system (within the limits prescribed by the legislation), as well as the enforcement of those instream flow rights. However, the government EWMs often have a range of water resource management responsibilities, which can cloud the issue when it comes to both acquisition and enforcement of water rights more broadly.¹¹² This lack of clarity also limits the capacity of these organisations to enhance the ability of the law to 'see' the environment, by making it difficult to separate out the environmental activities from others undertaken by the organisation (such as water accounting and enforcement of water rights).

The private EWMs are much more active in water right acquisition and management, even though in many cases, they may not continue to hold the formal title to the water right after it has been converted to instream use. The private EWMs are often referred to as the *retail arm* of the government EWMs, and when water rights are acquired, it is most often a result of the private EWM working with the irrigator to identify a win-win solution (eg, water savings, shorter irrigation seasons, or shifting diversion points downstream).¹¹³ The private EWMs may also be involved in making sure the instream flows are enforced by the state government. The private EWMs are clearly identifiable legal persons, and take the form of not-for-profit corporations with *Internal Revenue Code* 501(c)(3) status as charitable organisations. This status limits their ability to advocate for instream flows, and although they contribute to legal reform when required, this is not their primary role.

The EWMs of both the Columbia Basin (Table 11) and Colorado (Table 12) are dependent on a range of state legal frameworks to establish them as identifiable organisations with the required legal powers to hold and manage water rights for instream flows.

¹¹² See also discussion in Dustin Garrick and Erin O'Donnell, 'Exploring Private Roles in Environmental Watering in Australia and the US' in Jeff Bennett (ed), *Protecting the Environment, Privately* (World Scientific Publishing, 2016) 203.

¹¹³ See The Freshwater Trust, *Tools for Stream Flow Restoration* (2011) <<http://www.thefreshwatertrust.org/conservation/stream-flow/tools>>; National Fish and Wildlife Foundation, *Finding Balance – Typical Tools* (3 February 2012) Columbia Basin Water Transactions Program <<http://www.cbwtp.org/balance/TypicalTools.htm>>.

Table 11 EWMs of the Columbia Basin

EWM	Geographical extent of activities	Organisation type	Source of legal personhood rights and duties	Source of water holding and management capacities	Accountability: to whom does this organisation report?
Clark Fork Coalition (CFC)	Clark Fork River, Montana	Internal Revenue Code 501(c)3 non-profit corporation with 15 person board	Mont Code Ann § 35-2 (nonprofit corporation)	Articles of incorporation; <i>Montana Water Use Act</i> Mont Code Ann § 85-2 (1973)	• Members • Donors • Partners • US Internal Revenue Service • Montana Secretary of State
Trout Unlimited-MT Water Project (TU-MWP)	Montana	Internal Revenue Code 501(c)3 non-profit corporation established under the national organisation Trout Unlimited	Mont Code Ann § 35-2 (nonprofit corporation)	Articles of incorporation; <i>Montana Water Use Act</i> Mont Code Ann § 85-2 (1973)	• Local chapters and members • Donors • Trout Unlimited (national) • Partners • US Internal Revenue Service • Montana Secretary of State
Montana Fish, Wildlife and Parks Department (FWP)	Montana	State government department	Personhood under <i>Montana Water Use Act</i> limited to capacity to acquire water rights for instream flows	<i>Montana Water Use Act</i> Mont Code Ann § 85-2 (1973); the FWP is explicitly identified as a recipient of instream flows	• Department of Natural Resources and Conservation • Montana citizens • Fish and Wildlife Commission • Governor of Montana
Deschutes River Conservancy (DRC)	Deschutes River Basin, Oregon	Internal Revenue Code 501(c)3 non-profit corporation with 29 member board	Or Rev Stat § 65 (nonprofit corporation)	Only the Oregon Water Resources Department can hold instream flow water rights: Or Rev Stat § 537.332 (2013)	• Donors • Partners • US Internal Revenue Service • Oregon Secretary of State
The Freshwater Trust (TFT)	Oregon	Internal Revenue Code 501(c)3 non-profit corporation with 24 member board	Or Rev Stat § 65 (nonprofit corporation)	Only the Oregon Water Resources Department can hold instream flow water rights: Or Rev Stat § 537.332 (2013)	• Donors • Partners • US Internal Revenue Service • Oregon Secretary of State
Oregon Water Resources Department (OWRD)	Oregon	State government department	Personhood under for purposes of water rights	Can hold instream flow water rights: Or Rev Stat §	• Oregon citizens • Water Resources

EWM	Geographical extent of activities	Organisation type	Source of legal personhood rights and duties	Source of water holding and management capacities	Accountability: to whom does this organisation report?
			limited to capacity to acquire water rights for instream flows	537.332 (2013)	Commission Governor of Oregon
Walla Walla Watershed Management Partnership (WWWMP)	Walla Walla Basin (Water Resource Inventory Area 32) Washington State	Local public agency governed by a 9 member board	Personhood limited by legislation Wash Rev Code § 90.92.050	Wash Rev Code § 90.42 <i>Pilot Local Water Management Program (2014)</i> Wash Rev Code § 90.92	- Funders - Local community - Washington Department of Ecology - Washington State Legislature
Washington Council of Trout Unlimited	Washington State	Internal Revenue Code 501(c)3 non-profit corporation (an affiliate of national Trout Unlimited)	Wash Rev Code § 24.03 (nonprofit corporation)	<i>Water Resource Management</i> Wash Rev Code § 90.42 (2014)	- Local chapters and members - Donors - Trout Unlimited (national) - Partners - US Internal Revenue Service - Washington Secretary of State
Washington Water Trust (WWT)	Washington State	Internal Revenue Code 501(c)3 non-profit corporation with 9 member board	Wash Rev Code § 24.03 (nonprofit corporation)	<i>Water Resource Management</i> Wash Rev Code § 90.42 (2014)	- Donors - Partners - US Internal Revenue Service - Washington Secretary of State - Washington Department of Ecology
Washington Department of Ecology (Ecology)	Washington State	State government department	Personhood under Washington Water Resource Management Act limited to establishment of Trust Water Recovery Program	Water rights transferred to instream flow via the trust program Wash Rev Code § 90.42 (2014)	- Washington citizens - Office of Financial Management - Governor of Washington
Idaho Water Resource Board (IWRB)	Idaho	State government agency	Limited personhood as set out in Idaho Code Ann § 42.1732-34 (2014)	Right to acquire water rights as set out in Idaho Code Ann § 42.1734 (2014)	- Idaho citizens - Funders - Governor of Idaho

In each state of the Columbia Basin (except Idaho), private and public EWMs work in partnership to protect and restore instream flows (Table 11).

Table 12 provides the detail on the source of legal powers for personhood and holding and managing water rights for the EWMs in Colorado, where this partnership is especially close. The Colorado Water Trust works hand in hand with the CWCBC's Instream Flow Protection Program to recover water for the environment:

We run a simultaneous process with Linda [head of the Instream Flow Program at CWCBC] and let her know – where it can be used, how much, the stream miles, what is health of the water right – and make sure she's interested in acquiring the water right...Our most critical key partner is Linda and her team.¹¹⁴

The Colorado Water Trust is a close partner with us on acquisitions of water. They bring us water to acquire for instream flow use... The advantage of the Colorado Water Trust is that they have a team; it takes us a lot longer to investigate water rights. The Colorado Water Trust is helpful for us and the water user because they are faster.¹¹⁵

Table 12 EWMs in Colorado

EWM	Geographical extent of activities	Organisation type	Source of legal personhood rights and duties	Source of water holding and management capacities	Accountability: to whom does this organisation report?
Colorado Water Trust (CWT)	Colorado	Internal Revenue Code 501(c)3 non-profit corporation with 13 member board	Colo Rev Stat §7.121-137 (nonprofit corporation)	As a private person, CWT can acquire water rights via change of water right process: Colo Rev Stat §37-92-103(5). CWT cannot hold instream flow rights: Colo Rev Stat § 37-92-102(3) (2015).	• Donors • Partners • Colorado Water Conservation Board • US Internal Revenue Service • Colorado Secretary of State • Colorado Department of Revenue
Colorado Water Conservation Board (CWCBC)	Colorado	State water resource agency with 15 member board	Limited personhood as a function of state agency: Colo Rev Stat § 37-60 (2015).	Only CWCBC can hold instream flow rights: Colo Rev Stat § 37-60-123(7), 37-92-102(3) (2015).	• Colorado citizens • Funders • Department of Natural Resources, Division of Water Resources • Governor of Colorado

¹¹⁴ Interview CWT.

¹¹⁵ Interview CWCBC.

As Tables 11 and 12 demonstrate, each state in the Columbia Basin, and in Colorado, has a combination of government and non-government EWMs (except Idaho). These organisations work very closely together to protect and restore instream flows, and these working relationships have been further enhanced by NFWF's Western Water Program. In particular, the Columbia Basin Water Transactions Program has provided a model to bring together EWMs working in different locations so that they could learn from each other, and get better at the business of environmental water management.

The next section focuses on the operation of the EWMs. It is the activities of the EWMs that really showcase their dependence on legal personhood, and also highlight the tension that emerges between the multiple constructions of the aquatic environment in water law. In the western USA, it is the NGO EWMs that are often the most public 'face' of environmental water management.

B. *Operation of the EWMs: Appropriation and Acquisition*

The EWMs of the Columbia Basin and the state of Colorado focus on both protection and restoration of instream flows. Typically, government EWMs protect the aquatic environment by appropriating new water rights for the environment. This emphasis on protection enables government agencies to largely avoid two significant challenges: the financial cost of acquiring water rights, and the controversy of potentially reducing water availability for other users.

Private EWMs, however, focus on restoration of instream flows by acquiring water rights. They depend on convincing potential funders that they can improve existing environmental condition, so they target locations where the return of instream flows will generate a significant ecological response, but they can struggle to complete acquisitions. For example, in Oregon, the first decade of operation of the Oregon Water Trust (now the Freshwater Trust) was characterized by the difficulty of actually completing a water transaction.¹¹⁶ One of the reasons for this difficulty is that the private EWMs in the western USA are seeking to undertake water transactions that result in wins for the environment, the irrigators, *and* the broader community (unlike Australia, where individual water purchase decisions are made based on a price acceptable to the EWM and the individual irrigator). For example, the EWMs of the Columbia Basin Water Transactions Program do not engage in water transactions that will result in irrigators

¹¹⁶ Neuman, above n 8.

ceasing to operate.¹¹⁷ Requiring each transaction to be acceptable to all three groups necessarily slows down transactions as the EWMs must work with irrigators to find ways to increase instream flows without shutting down irrigation.

Both types of EWM are shaped by the legal requirements of the water laws. The EWMs depend on their legal personhood to enable them to hold water rights under the state water laws. In the case of the government EWMs, legal personality may be limited to that required to hold such water rights (Tables 11 and 12). Further, the strong partnership that has evolved between government and private EWMs in each state reflects the limitations on who can hold instream flow rights. This partnership has been enhanced by the ability of private EWMs to obtain funding and work closely with potential sellers (or leasers) of water rights.

All EWMs, however, are vulnerable to changing community values of instream flows, and depend on the continued desire to maintain and improve instream flows for the aquatic environment.¹¹⁸ Interestingly, the objectives of the EWMs in the western USA are broader than those of the EWMs in Australia,¹¹⁹ and seek to explicitly connect the health of the aquatic environment to better outcomes for people (Table 13). Many of the private EWMs explicitly reject a 'pure' environmental focus, as a staff member from Trout Unlimited Montana explained:

'[The] majority [of members] are strong fly fishermen. So it's basically identified as a fishing organisation that does conservation work, which is a much better vehicle than self-identified environmental group.'¹²⁰

Table 13 demonstrates the breadth of the objectives for the EWMs of the Columbia Basin and Colorado. The objectives highlight the difficulty of constructing the aquatic environment in law as an entity that is important for its own sake, and demonstrate the ongoing importance of human value for healthy, functioning aquatic ecosystems.

¹¹⁷ Columbia Basin Water Transactions Program, *Annual Report 2012: A Decade of Outcomes 2003-2012* (National Fish and Wildlife Foundation, 2012) ('*A Decade of Outcomes*').

¹¹⁸ See Chapter 7.

¹¹⁹ See Chapter 5, Table 9, 134.

¹²⁰ Interview TUM.

Table 13 Objectives of the EWMs of the Columbia Basin and the state of Colorado

EWM	Objectives
Clark Fork Coalition (CFC)	Mission: 'The Clark Fork Coalition is dedicated to protecting and restoring the Clark Fork River basin.' Vision: 'The Clark Fork Coalition envisions a future when the Clark Fork River system flows with clean, cold, and abundant waters that ensure the people, fish, and wildlife of the region flourish for generations to come...' Strategies: 'Protect clean water strongholds, past gains, and ongoing restoration investments; restore resiliency and improve the vital signs of our waterways; engage and inspire people to care for the waters that provide for us all; and sustain the momentum and increase the Coalition's capacity to achieve the vision.' ¹²¹
Trout Unlimited-MT Water Project (TU-MWP)	Mission: 'to conserve, protect, and restore Montana's world-class coldwater fisheries and their watersheds'. ¹²²
Montana Fish, Wildlife and Parks Department (FWP)	Mission: to provide 'for the stewardship of the fish, wildlife, parks, and recreational resources of Montana, while contributing to the quality of life for present and future generations' and to do so, the FWP Fisheries Division 'preserves, maintains, and enhances aquatic species and their ecosystems to meet the public's demand for recreational opportunities and stewardship of aquatic wildlife'. ¹²³ FWP's Instream Flow Protection aims to: 'physically and legally protect, restore, and manage the instream flows required to sustain Montana's aquatic species, their habitats, and related ecosystems with focus on the increasing competition for the water resources, limited supplies and changing hydrologic conditions.' ¹²⁴
Deschutes River Conservancy (DRC)	Mission: 'to restore streamflow and improve water quality in the Deschutes Basin'. ¹²⁵
The Freshwater Trust (TFT)	TFT: 'protects and restores freshwater ecosystems... [u]sing science, technology and incentive-based solutions' ¹²⁶
Oregon Water Resources Department (OWRD)	Mission: 'to serve the public by practicing and promoting responsible water management through two key goals: to directly address Oregon's water supply needs, and to restore and protect streamflows and watersheds in order to ensure the long-term sustainability of Oregon's ecosystems, economy, and quality of life.' ¹²⁷
Walla Walla Watershed Management Partnership (WWWMP)	Vision for the Walla Walla Basin: 'a place where water is managed locally to achieve and sustain a healthy river system where human and natural communities thrive and flourish now and in the future'. ¹²⁸
Trout Unlimited - Washington Water Project (TU-WWP)	Mission: 'to conserve, protect and restore cold water fisheries, their watersheds, and ecosystems as a means of maintaining our quality of life'. ¹²⁹
Washington Water Trust (WWT)	WWT is: 'a neutral, nonregulatory nonprofit, dedicated to improving and protecting stream flows and water quality throughout Washington state'. ¹³⁰
Washington	Mission: 'to protect, preserve and enhance Washington's land, air and water for

¹²¹ Clark Fork Coalition, *Strategic Plan 2013-2017* (Clark Fork Coalition, 2013), 3, 7.¹²² Montana Trout Unlimited, *Projects* (2016) <<http://montanatu.org/projects/>>.¹²³ Montana Fish Wildlife and Parks, *Montana Statewide Fisheries Management Plan 2013-2018* (Montana Fish, Wildlife and Parks, 2013), 7.¹²⁴ Ibid, 63.¹²⁵ Deschutes River Conservancy, *Mission* <<http://www.deschutesriver.org/about-us/mission>>.¹²⁶ Freshwater Trust, *About Us* (2015) <<http://www.thefreshwatertrust.org/about-us/>>.¹²⁷ Oregon Water Resources Department, *About Us* <http://www.oregon.gov/owrd/Pages/about_us.aspx>.¹²⁸ Walla Walla Watershed Management Partnership, *Strategic Plan Update 2012-2015* (Walla Walla Watershed Management Partnership, 2012), 2.¹²⁹ Washington Council of Trout Unlimited, *Home* (3 February 2016) <<http://www.troutunlimitedwashington.org/index.html>>.¹³⁰ Washington Water Trust, *About Us* (2016) <<http://www.washingtonwatertrust.org/about-us>>.

EWM	Objectives
Department of Ecology (Ecology)	current and future generations. ¹³¹ Mission of the water resources program: 'to manage water resources to meet the current and future needs of the natural environment and Washington's communities.' ¹³² Ecology is: 'committed to meeting current water needs and ensuring future water availability for people, fish and the natural environment.' ¹³³
Idaho Water Resource Board (IWRB)	Objective: 'the conservation, development, management, and optimum use of all unappropriated water resources and waterways of this state in the public interest.' ¹³⁴ Idaho Code Ann § 42-1734A.
Colorado Water Trust	Mission: 'to restore and protect streamflows in Colorado to sustain healthy aquatic ecosystems' by engaging in and supporting voluntary efforts and market-based transactions. ¹³⁵
Colorado Water Conservation Board	Mission: 'to conserve, develop, protect and manage Colorado's water for present and future generations'. ¹³⁶ Goal of the Instream Flow Program: 'to preserve and improve the natural environment to a reasonable degree' by appropriating, acquiring, protecting and monitoring of instream flow and lake level water rights. ¹³⁷

The multiple objectives of the EWMs of the western USA (Table 13) demonstrate the challenge of combining legal personhood, which is a narrow, powerful legal construct of the environment, with the broader and legally weaker constructs of the socio-ecological concept and legal object.¹³⁸ The objectives of many of the EWMs emphasise the socio-ecological aims of the EWM: protecting the aquatic environment to support the human activities dependent on the condition of the aquatic environment (such as fishing). Government EWMs also embed their streamflow protection activities as part of a broader program of balanced water resource management, reflecting the nature of newly appropriated instream flows to act more as a limit on others' activities than a clear legal right. However, the way that the staff of the EWMs describe their activities presents a much clearer vision of the EWMs. The following quotes come from both government and non-government EWMs, both of which have broad formal objectives:

¹³¹ Department of Ecology, State of Washington, *About Us* <<http://www.ecy.wa.gov/about.html>>.

¹³² Department of Ecology, State of Washington, *Ecology Programs* <<http://www.ecy.wa.gov/programs.html>>.

¹³³ Department of Ecology, State of Washington, *Water Resources Program* <<http://www.ecy.wa.gov/programs/wr/wrhome.html>>.

¹³⁴ See also Idaho Water Resource Board, *Idaho State Water Plan* (Idaho Water Resource Board, 2012), 6.

¹³⁵ Colorado Water Trust, *About Us* (2016) <<http://www.coloradowatertrust.org/about-us>>.

¹³⁶ Colorado Water Conservation Board, *About the CWCB* <<http://cwcb.state.co.us/about-us/about-the-cwcb/Pages/main.aspx>>.

¹³⁷ Colorado Water Conservation Board, *Instream Flow Program* <<http://cwcb.state.co.us/environment/instream-flow-program/Pages/main.aspx>>.

¹³⁸ See Chapter 3.

Our mission is really to make sure water goes instream.¹³⁹

The water acquisition program was started as a tool to provide for protecting the environment.¹⁴⁰

The next sections describe the two major activities to provide instream flows undertaken by the EWMs of the western USA: appropriation of new water rights for instream flows, and acquisition of existing water rights for instream flows.

1. *Appropriation of Instream Flows: Protection*

[T]he primary tool for protecting flow is appropriating new junior water rights.¹⁴¹

Appropriation creates a new, junior water right to protect instream flows of a particular volume at a specific location in the river basin. This protection prevents future water extractions from further reducing instream flows (as any new appropriations can only be met after the instream flows have been provided) but does not prevent more senior water right holders from drying out the stream during low flow periods. As a result, appropriation of new instream flow rights operates as a protection policy, not a restoration policy.¹⁴² Government EWMs are responsible for the appropriation of new water rights for instream flows.

The appropriation of instream flows began in response to the concern that streams were regularly drying out, and this was causing significant problems for migratory fish species, such as the salmonids. Many of these species are now listed under the federal *Endangered Species Protection Act*, and in some instances, avoiding a federal agency intervention was a significant driver for the establishment of state-based programs to appropriate new instream flow rights:

At around 1973... environmental consciousness was increasing. There was an issue occurring with big water projects, the federal agencies were starting to impose bypass flows to protect environment, and state water users didn't like that. They wanted more control over water in Colorado, so the instream flow program was created as an alternative to the federally mandated bypass flows. We work with the federal agencies to show that we can meet their goals through the state program, so we can retain state control over stream flows.¹⁴³

This is a challenge that continues to inform state water planning processes today, as the a staff member from the Washington Department of Ecology noted: '[w]e also have ESA

¹³⁹ Interview WWT.

¹⁴⁰ Interview WDE 1.

¹⁴¹ Interview CWT.

¹⁴² See Chapter 2, 30.

¹⁴³ Interview CWCBC.

[*Endangered Species Act*] responsibilities. 80% of watersheds in the state have listed species'.¹⁴⁴

State water planning processes began to include the concept of protecting water to remain instream as part of broader water resource plans in response to increasing urban demands.¹⁴⁵ Unlike the Murray-Darling Basin in Australia, these plans operate at the state level, with little coordination between states in the same basin. Even in Colorado River, the interstate compact has not been especially helpful in assisting water resource planning at a collective level.¹⁴⁶ Several states have attempted to close basins to new consumptive appropriations (which has been overruled)¹⁴⁷ or to require any new appropriation to be offset by improving water availability (though water savings or water purchase) elsewhere.¹⁴⁸

All of the government EWMs have legal personality in water law, sufficient to hold the newly created water right under the state water laws, and this capacity is often expressly created and limited in water law (Tables 11 and 12). In many cases, the government EWMs are the only entity legally entitled to hold water rights for instream flows.

2. *Appropriation and Construction as a Legal Object/Subject Hybrid*

The government EWMs are legal entities with their own water rights; but as highlighted in this chapter, this construction of the environment is severely limited, and reflects the tension between two very different constructions of the environment. The appropriation programs of the government EWMs are protection policies,¹⁴⁹ which construct the environment as a weak legal object, requiring and deserving of protection.¹⁵⁰ Yet the environment only remains deserving of protection so long as it is weak, and where a clear case can be made that protection is necessary. The limits on appropriation programs are designed to retain this 'weak' construction of the environment. For

¹⁴⁴ Interview WDE 2.

¹⁴⁵ Thorson et al, above n 50.

¹⁴⁶ See Garrick, *Water Allocation in Rivers Under Pressure*, above n 23.

¹⁴⁷ This 'cap' on water allocations is often termed a 'moratorium' on new water allocations.

¹⁴⁸ An example here is Washington's water banking program, which can be used to obtain offsets to support new development. It is essentially operating as a staged form of water market, where a would-be seller 'parks' their water in the water bank, which protects it from forfeiture during the period when it may not otherwise be used. A potential buyer, when they need to offset their own water appropriation, may seek to purchase the offset via the water bank.

¹⁴⁹ See Chapter 2, 30; see also Chapter 6, 162.

¹⁵⁰ Chapter 3, 82.

example, early instream flow programs placed legal limits on the appropriation of instream flows to the minimum necessary to preserve the environment, and this remains the case today in Idaho.¹⁵¹ In Colorado, the ability to appropriate instream flows beyond that needed to preserve the environment was only lifted in 2001; and in addition to creating challenges for the government EWM (CWCB), this only creates opportunities for acquisition rather than appropriation:

For a new instream flow right, we aim to preserve the natural environment to a reasonable degree; we use quantification techniques to establish the base flow. In 2001, the Board was given authority to improve the natural environment, and this has been controversial, we're being asked for more definition on what this actually means, as this requires flows above that basic preservation amount to provide additional useable habitat for fish. This is something more we can do with the acquired water.¹⁵²

Furthermore, the water must be present instream to support a new appropriation for instream use. This is a significant limit on the applicability of appropriations. In Idaho, despite an instream program being in place since 1978, only 2% of stream miles in the state are protected under 291 instream flow rights.¹⁵³

Fundamentally, the ability to appropriate instream flows lacks the flexibility to respond to changing trends (such as the future decline in water availability under climate change), changing ecological needs, and changing social demands for environmental amenity. New appropriations of instream flows, except in almost pristine rivers, are incapable of protecting the full suite of environmental flows required, and often only result in the protection of a minimum flow, which may be sufficient to keep a river running, but will not provide the necessary spawning or migration triggers to fish species.¹⁵⁴ This emphasis on protection of existing environmental quality, combined with this lack of flexibility, reduces the legal right created by the appropriation into little more than a legal object that limits the activities of other users. It is easy to focus on the *formal* nature of the newly appropriated water rights as legal rights, and their requirement to be held by a legal person, but in such a stringently use-oriented water law paradigm, this construction of the aquatic environment was necessary to give it any place at all.

¹⁵¹ *Idaho Minimum Instream Flows Program*, above n 81.

¹⁵² Interview CWCB.

¹⁵³ *Idaho Minimum Instream Flows Program*, above n 81.

¹⁵⁴ Byorth, above n 47.

In the states of the Columbia Basin and Colorado, instream flow appropriations far outnumber the instream flow rights that have been acquired from existing users.¹⁵⁵ Many of the instream flow appropriation programs date back to the first recognition of the environment as a beneficial use of water (eg, 1955 in Oregon, 1967 in Washington, and 1973 in Colorado). These programs are of long duration and represent a significant commitment to protecting existing environmental condition in many rivers in these states. However, their overall success has been mixed. In Colorado, the Colorado Water Conservation Board has appropriated over 1900 instream flow rights (including 476 lake level protections),¹⁵⁶ and these rights protect over 30% of the perennial river miles in Colorado.¹⁵⁷ However:

More than 98% of the CWCB's instream flow water right portfolio (by number of water rights) is junior to 1973... often making them some of the most junior water rights in the State's prior appropriation system.¹⁵⁸

As the Colorado Water Trust staff member argued:

We should be amplifying the ability to move senior water into the instream flow program – this water is climate change durable, voluntary, market based, less regulatory; there is a real desire to see a lot more senior water in the program.¹⁵⁹

In practical terms, appropriated water rights are little more than legal objects, with limited legal powers. The appropriated water rights create a legal object/subject hybrid, and (in most cases) the government EWMs rely on the acquisition activities of NGO EWMs to attain senior water rights.

3. *Acquisition of Instream Flows: Restoration*

[E]nvironmental water transactions have gained a prominent role as an important tool in protecting and restoring water-dependent ecosystems...¹⁶⁰

Across the USA, environmental water acquisition is increasing.¹⁶¹ Scarborough has collated the most complete record of environmental water transactions across the western states from 1987-2007, and includes over 2800 transactions, which delivered over

¹⁵⁵ Charney, above n 9, 18.

¹⁵⁶ Ibid.

¹⁵⁷ Dan Merriman and Anne M Janicki, *Colorado's Instream Flow Program - How it Works and Why it's Good for Colorado* (Colorado Water Control Board, 2005).

¹⁵⁸ Zach Smith and Edalin Koziol, *The Water Report* (Colorado Water Trust, 2014).

¹⁵⁹ Interview CWT.

¹⁶⁰ Malloch, above n 1, 35.

¹⁶¹ Scarborough, above n 62; D Garrick and B Aylward, 'Transaction Costs and Institutional Performance in Market-Based Environmental Water Allocation' (2012) 88(3) *Land Economics* 536.

ten million acre-feet¹⁶² of water to streams, for a price tag of over \$US500 million.¹⁶³ In the Columbia Basin, transactions to improve instream flows have grown steadily over the decade from 2003-2012.¹⁶⁴ This includes a combination of permanent purchases, long term and short term leases, water conservation and donations (which can be permanent or temporary).

Acquisitions of existing water rights for instream flows solve several key problems: (1) acquisitions give the environment access to senior water rights, enabling flows to be restored as well as protected; (2) acquisitions can be used to increase flexibility, by restoring a particular flow at a particular time; and (3) acquisitions can be undertaken in chronically or periodically dewatered rivers, not just in rivers where water remains for appropriation. Acquisitions of senior water rights from existing users for the purpose of instream flows are a restoration policy, aimed at improving the existing quality of the aquatic environment.¹⁶⁵

Typically, water markets that enable water transfers between users are only effective when total water use has been capped. It is the cap that creates scarcity, so that unmet demands for water need to seek it from the existing pool of water rights, rather than seeking to enlarge that pool.¹⁶⁶ However, the water laws of the western USA do not typically set formal caps on water use, and in the Columbia Basin and Colorado, it is the heterogeneity of the water rights that can support water transfers as a mechanism to improve instream flows.¹⁶⁷ Senior water right holders have the first call on water in the stream, and during low flow periods, just extracting their water can cause the stream to dry out. EWMs can therefore focus on these senior water right holders:

Knowing where you want to work is important and typically, now we do a basin assessment to consider where the rights are, who owns them, who the most senior right holder is, where it [the senior right] is... We only work with senior water right holders, so we start with the most senior water

¹⁶² An acre-foot is the volume of water required to cover one acre of land to a depth of one foot. One acre-foot is equivalent to 0.001233 gigalitres (GL), so 10 million AF is equivalent to 12,330 GL.

¹⁶³ Scarborough, above n 62, 17.

¹⁶⁴ *A Decade of Outcomes*, above n 117.

¹⁶⁵ See Chapter 2, 32.

¹⁶⁶ John Freebairn, 'Principles and Issues for Effective Australian Water Markets' in Jeff Bennett (ed), *The Evolution of Markets for Water: Theory and Practice in Australia* (Edward Elgar, 2005) 8; Garry, above n 62; Terry L Anderson and Gary D Libecap, *Environmental Markets: A Property Rights Approach* (Cambridge University Press, 2014).

¹⁶⁷ This heterogeneity may undermine the effectiveness of the water market as a whole, but it does provide an entry point for targeted water transactions for the environment.

right holders; if they're at the bottom of the reach and the most senior that's ideal, as the water is there all the way down the reach.¹⁶⁸

However, although this heterogeneity creates an entry point for targeted environmental water recovery via water transfer, the process remains extraordinarily slow and expensive:

The transaction cost element is very expensive. It's very different to new appropriations, the process to transfer a water right and the transaction costs are much more significant, there's a lot more work on the front end. And it's not a uniform process, there are messy negotiations...¹⁶⁹

The acquisition programs are all relatively recent, as they required legal reform to both recognise the environment as a beneficial use, and enable the transfer of existing water rights to instream flows.¹⁷⁰ These acquisition programs are undertaken for two distinct purposes. Firstly, to protect or improve habitat for threatened species (under the federal *Endangered Species Act*) or wildlife refuges,¹⁷¹ and these programs are typically supported by government EWMs in response to a legal requirement to increase instream flows. The government agency may partner with a private EWM to undertake the actual transaction (even if it ends up as a transfer to a government EWM), by providing funding or other agency support.¹⁷² Secondly, to improve the condition of aquatic environments for a range of purposes, including the support of angling and duck hunting, which are generally undertaken by private EWMs. There is often a high degree of overlap between the priorities of government and private EWMs:

Used to be "come one, come all", but now we're overlaying our priorities with conservation initiatives.¹⁷³

In the Upper Clark Fork, for example, we work with NRDP [the Natural Resource Damage Program] to identify tributaries that are the most important for native fish recovery in the basin. We also work with DFWP [Department of Fish and Wildlife] across the basin to identify high priority tributaries from a fishery perspective.¹⁷⁴

¹⁶⁸ Interview WWT.

¹⁶⁹ Interview CWT.

¹⁷⁰ See above discussion at 164.

¹⁷¹ Malloch, above n 1, 6.

¹⁷² For example, the Bonneville Power Administration is a federal government agency that provides funding for the Columbia Basin Water Transactions Program, where the water acquisitions are predominantly carried out by NGOs.

¹⁷³ Interview NFWF.

¹⁷⁴ Interview CFC.

Sometimes motivation for land owners is enforcement driven ... that really drives business; water transactions are often ESA [Endangered Species Act] driven, as in all the areas we work in there are listed fish.¹⁷⁵

However, the private EWMs retain flexibility to acquire water, and can be more opportunistic when necessary:

We don't have a rigid science model, because there are a whole bunch of different factors: for example, maybe you need to get to this dewatered tributary by working on another tributary, because you've got the relationship there first; often there's multiple stages. Often we'll do opportunistic leases, because they help us get where we're trying to go...¹⁷⁶

In the Columbia Basin and Colorado, only Idaho conducts its instream flow program without a significant private partner EWM (probably because the instream flow program in Idaho is almost solely focused on appropriation of new water rights).¹⁷⁷ In all other locations, the private EWMs work alongside the government EWMs to acquire instream flows.¹⁷⁸ There is widespread recognition that, in the western USA in particular, there is a real benefit to using a private organisation as the face of environmental water transactions:

I think that a non-profit organisation is much better equipped to work with private land owners than the government. In the western United States, there's a lot of baggage... Negotiating with the government about water is more than farmers can handle, but private non-profit hasn't got that baggage, and can often be comprised of local community members, which can open doors. Government can never do that, that's the main benefit of the non-profit: they can have conversations that government can't have with people about their property.¹⁷⁹

The combination of legal limits on who can hold instream flow rights, combined with the preference of irrigators in the western USA to avoid doing business directly with government, has positioned the private EWMs as the 'retail arm'¹⁸⁰ of the government EWMs.¹⁸¹ In the absence of a highly functional water market, the private EWMs are dependent on negotiating one-on-one with landholders to obtain the voluntary transfers

¹⁷⁵ Interview FWT.

¹⁷⁶ Interview TUM.

¹⁷⁷ There is a small exception in the Lehmi and Salmon River Basins, but this is limited to leases of instream flows; Laura Ziemer and Scott Yates, 'Montana, Idaho and Wyoming: Obstacles and Opportunities in State Water Right Change Process - the Good, the Bad and the Ugly' in *Water in the West: Environmental Water Transactions, 15-16 January 2014* (Water in the West, 2014); Edna T Loehman and Sasha Charney, 'Further Down the Road to Sustainable Environmental Flows: Funding, Management Activities and Governance for Six Western US states' (2011) 36(7) *Water International* 873.

¹⁷⁸ Garrick and O'Donnell, above n 112; Loehman and Charney, above n 177.

¹⁷⁹ Interview DRC.

¹⁸⁰ Interview WWT.

¹⁸¹ Garrick and O'Donnell, above n 112.

of water rights. Although the private EWMs are supported by government agencies, and a fairly wide array of government and private funders, their real power lies in their ability to open the conversation with irrigators and other water users. As a result, the EWMs are vulnerable to changing community perceptions, and work very hard to maintain a good relationship with the water user community:

We're advocating for policies to do the work more effectively, but trying very hard not to alienate other water users.¹⁸²

[W]e're speaking out for the work, but we walk a fine line ... our mission doesn't involve sustainable agriculture, but we have to make it work for the agriculture community too.¹⁸³

4. *Acquisition and construction as a legal subject*

The role of the private EWMs in procuring voluntary transfers of water rights for instream flows needs to be understood as part of a wider legal context in the western USA. Following passage of the *Endangered Species Act* in 1973, a number of court cases demonstrated the power of the law to construct the environment as an object with the capacity to significantly limit the activities of others, and created an 'us or them' mentality in the western USA. Firstly, there was the long-winded spotted owl litigation, which pitted environmentalists against loggers and local communities.¹⁸⁴ Secondly, a decision to withhold water from irrigators to protect threatened fish species inflamed the community of the Klamath Basin, in southern Oregon and northern California.¹⁸⁵ Attempting to acquire instream flows in the aftermath of these cases was phenomenally challenging. The Oregon Water Trust discovered this during its first decade of operations, when it found it difficult to find water rights to acquire for the environment, leaving it with funds it could not spend.¹⁸⁶ Even just over a decade ago, at the beginning of the Columbia Water Transaction Program, private EWMs were still encountering serious pushback from irrigators:

¹⁸² Interview CFC.

¹⁸³ Interview FWT.

¹⁸⁴ Barry R Noon and Kevin S McKelvey, 'Management of the Spotted Owl: A Case History in Conservation Biology' (1996) 27 *Annual Review of Ecological Systems* 135; Jeb Boyt, 'Struggling to Protect Ecosystems and Biodiversity under NEPA and NFMA: The Ancient Forests of the Pacific Northwest and the Northern Spotted Owl' (1993) 10(2) *Pace Environmental Law Review* 1009.

¹⁸⁵ Doremus and Tarlock, 'Fish, Farms and the Clash of Cultures', above n 76; Doremus and Tarlock, *Water Water in the Klamath*, above n 84.

¹⁸⁶ Neuman, above n 8.

[T]he notion back in 2003 that anyone would even consider water instream, was enough to get run out of dodge. It was really considered a traitorous act...¹⁸⁷

As a result, the private EWMs had to construct the aquatic environment and instream flows as something that could exist alongside agriculture, without being a threat to communities or a way of life. Private EWMs are very wary of any attempt to present instream flows as an alternative to agriculture:

We aim to keep the landscapes working, we don't want to 'buy it up and dry it up', we don't want to perpetuate that; obtaining the flow targets in a variety of different ways appeals to the communities.¹⁸⁸

Constructing the environment in this way required the private EWMs to focus on efficiency savings, which take longer but ultimately generate greater community support for instream flows.¹⁸⁹ Almost all water transfers are the result of an investment to increase efficiency of water use, change the time or location of water use, or alter aspects of an irrigator's business so that less water is needed.¹⁹⁰ This shift in approach changed the attitudes of water users and the community, creating the possibility of mutually acceptable outcomes for the EWM, the irrigators and the community: '[when] people realized that if you can offer efficiency, you can make their lives a little easier and still have water in stream.'¹⁹¹

Both appropriation and acquisition of instream flows are contingent on the legal personality of the EWMs and their ability to hold and acquire water rights. However, in both cases, this formal legal construction is limited in important ways. In most states, only nominated agencies can hold environmental water. Appropriation is limited to locations where a clear case can be made that the environment is both worthy of protection and where the means to protect it without affecting other users' rights exist. Acquisition programs were designed as a way to work around the zero-sum outcomes of the *Endangered Species Act*, but in doing so, have constructed the aquatic environment

¹⁸⁷ Interview WWT.

¹⁸⁸ Interview FWT.

¹⁸⁹ It is also worth noting that work in Australia has shown that the market is likely to be the source of the cheapest available water for environmental recovery, and the additional cost of efficiency savings (whilst it may also increase community and water user support) means that there is less funding for other opportunities (such as public funding of education or health, or private funding of other environmental programs), see Productivity Commission, *Market Mechanisms for Recovering Water in the Murray-Darling Basin (Final Report, March)* (Productivity Commission, 2010).

¹⁹⁰ *A Decade of Outcomes*, above n 117.

¹⁹¹ Interview WWT.

as something that co-exists with other users of the water resource. Although the formal construction of the environment as a legal entity with power to acquire senior water rights increases the ability of the EWMs to improve environmental flows, the inability of the EWMs to access this power without undermining their ongoing legitimacy in their communities is a real problem.¹⁹²

IV. CONCLUSION

By using the conceptual framework developed in Chapter 3,¹⁹³ this chapter shows that the aquatic environment is constructed in the water law of the western USA in three ways. Firstly, water law reforms *recognized* the environment as a broad socio-ecological concept, and established the environment as a beneficial use of water. This construction of the environment included both ecological health (such as threatened species habitat) and the social values that are dependent on healthy aquatic ecosystems (such as water quality and recreational uses like angling and duck hunting). Secondly, the *Endangered Species Act* has been used to limit the activities of existing water users, translating the environment as a legal object, but one which remains of limited legibility to water law, as it does not create private rights to water. Thirdly, water laws established the environment as the holder of legal water rights, for the purposes of maintaining instream flows. This construction blended elements of the legal object and legal subject.

The aquatic environment was constructed as a legal subject by establishing organisations with the legal powers necessary to hold water rights (the EWMs). However, their rights and powers were (and are) limited by legal restrictions on the ability to *appropriate* instream flows to cases where the environment is considered worthy of protection, able to be protected, and often only to a minimum standard. In practical terms, the ability to appropriate water rights constructed the environment as little more than a legal object, although it was, at last, legible to water law. Finally, with the more recent ability to *acquire* existing water rights, and retain their seniority, the aquatic environment was constructed as a more powerful legal person, although still affected by limits on who can hold the instream flow rights. Even then, the organisations tasked with responsibility to acquire these water rights, most often the private EWMs, constructed the environment as a subtly weaker version of itself: something that can coexist with other uses of water,

¹⁹² See further discussion in Chapter 7.

¹⁹³ See Chapter 3, 87, and Figure 1, 89.

without requiring a significant reduction in agricultural use of water to support environmental outcomes.

The EWMs of the Columbia Basin and Colorado include government EWMs, which are typically those organisations recognized in legislation as able to hold instream flow rights, and private EWMs, who work closely with them. The government EWMs are responsible for appropriating (creating) new instream flow rights for the environment, and may also have the capacity to acquire existing water rights.

Water users in the western USA tend to prefer to negotiate with private EWMs rather than government agencies, so the private EWMs are more visible, to both the law and local communities. The private EWMs depend on the support of irrigation communities for their continued access to water rights, and while they will litigate if necessary to enforce a contract or protect their own water rights, they largely avoid framing the environment in opposition to agriculture. This construction has evolved over time, in response to a painful history of environmental litigation in the west, as well as a low-functioning water market, which means every water transaction needs to be negotiated on a case-by-case basis. This requirement to engage in a time-consuming and expensive conversation slows down instream flow transactions, but also provides an opportunity to explicitly address the tensions between the legally powerful EWM (which can acquire water rights) and the need to convince the broader community that the environment deserves those water rights.

Chapters 5 and 6 have examined how the aquatic environment is constructed in water law. They have shown the capacity for interaction between these constructions, and how the tension between the different constructs is manifests in the creation and operation of the EWMs. By exploring the different geographical case studies, both chapters engaged with an array of different EWM types, operating within two quite distinct water law frameworks. Chapter 7 builds on this detailed analysis to explore the effects of the interactions between the constructs, particularly on the construction of the aquatic environment as a legal subject. In particular, Chapter 7 shows how shifts in the cultural narrative underpinning the different constructions of the aquatic environment can lead to legal reform that limits the ability of the EWMs to protect and improve the health of the aquatic environment.

Chapter 7

Legal Personhood and the Paradox of the EWMs

I. INTRODUCTION

There is a critical relationship between concepts of ownership and agency, and the extent to which the environment is seen as an equal partner in human-environmental interactions.¹

In south-eastern Australia and the western USA, the EWMS have the rights and powers of legal persons, and operate within water law to construct the aquatic environment as a legal subject. The two case studies show that the EWMs sit alongside other constructions of the aquatic environment in law: the socio-ecological concept and the legal object.²

This chapter brings the findings of the case studies together to show how the constructions of the aquatic environment in water law interact, and, ultimately, what happens when the aquatic environment is constructed in law as a legal subject.³ To do so, this chapter examines the way that the EWMs are defined by both their formal legal powers, and the choices made by their staff to use a particular subset of those powers. This analysis is grounded in the perspectives of the EWM staff, with a strong reliance on the interview data to tell the story of the EWMs.

In particular, this chapter uses the conceptual framework developed in Chapter 3 to demonstrate the importance of cultural narratives, and the relationship between narrative and regulatory response.⁴ The EWM, as an organisation with legal personality, legal rights to water and (at least some) funding, is a legally powerful construction of the environment that can compete with existing water users. The EWMs then choose which legal powers to use in order to conduct their activities, and these choices can be understood as deliberate strategies to align their operations with a dominant cultural narrative about the role of the aquatic environment. However, the multiple

¹ Veronica Strang, *Gardening the World: Agency, Identity and the Ownership of Water* (Berghahn Books, 2009), 23.

² See Chapters 5 and 6; see also Figure 1, 89.

³ See Chapters 1 and 7.

⁴ Chapter 3, 87.

constructions of the aquatic environment in water law mean that the competing narratives remain present, shaping conflicting responses to the activities of the EWMs.

Other water users, confronted with the legal power of the EWMs, and most particularly their capacity to compete in the water market, can become afraid of the EWMs. One response to this fear of the EWMs is legal reform that constrains the legal personhood powers of the EWMs in ways that other water users are not constrained. This legal reform reflects the narrative that the aquatic environment, when constructed as a legal person does not require, and should not receive, any 'special' protection. This result is the paradox of the EWMs: by increasing the legal power of the aquatic environment through its construction as a legal person, the creation and operation of the EWMs also weakens the cultural narrative (and the law) that supports the protection of the environment in the first place.

II. POWER AND THE ABILITY TO USE IT: LIMITS ON THE EWMs

The EWMs are organisations that have been accorded legal personality, which includes the formal capacity to 'bear a legal right and so to participate in legal relations'.⁵ Chapters 5 and 6 demonstrated that the EWMs have the power to use these legal rights by acting on their own behalf, but their ability to do so is constrained by both legal form and the choices they themselves make.

In Australia, staff from the VEWH expressed considerable ambivalence on the capacity of the VEWH to act as it sees fit:

We ... inform the Minister, we don't wait for him to clear it, it's our call; we assert our independence.⁶

[T]he VEWH as an organisation is very mindful of its reputation.⁷

In the USA, staff from the EWMs were optimistic about their ability to influence outcomes, but also acknowledged the position and power of the other water users:

We are a leadership voice in water policy and we have an outsize influence on water policy...⁸

⁵ Ngaire Naffine, 'Who are Law's Persons? From Cheshire Cats to Responsible Subjects' (2003) 66(3) *Modern Law Review* 346, 350.

⁶ Interview VEWH 1.

⁷ Interview VEWH 3.

⁸ Interview TUM.

The irrigation districts, the water users themselves, are really at the top of the hierarchy in terms of affecting water management.⁹

Firstly, the powers and rights of the EWM are often specifically limited under statute. Legal personality is a particular ‘constellation of rights’¹⁰ and duties associated with a specific legal subject, and the EWMs, even when created using a generic corporate form, are usually limited in their legal capacities by water laws.¹¹ Interestingly, some of these limits are specifically imposed on the EWM as the manager of water for environmental purposes, and do not apply to other water users.¹²

Secondly, there are also specific legal rights and powers that the EWMs are *reluctant* to use, because of the realpolitik of the context in which they are operating. These powers include those established in statute as well as contractual agreements (see discussion below). The EWMs in both south-eastern Australia and the western USA exhibit this reluctance in various ways. In Australia, the EWMs choose to limit their participation in the water market by conducting acquisition through various limited reverse auctions, in order to reduce their potential effect on the water market and competition with other water users.¹³ In the western USA, this reluctance is most obviously exhibited in the refusal to acquire water rights that would result in the former water user ceasing to operate.¹⁴

The following sections examine how the EWMs are created in law, and how their legal form includes specific limitations on their powers, compared to other water users. Next, the operations of the EWMs are examined to identify the choices the EWMs make about which legal powers they will use.

⁹ Interview DRC.

¹⁰ Ngaire Naffine, *Law's Meaning of Life: Philosophy, Religion, Darwin and the Legal Person* (Hart Publishing, 2009), 10.

¹¹ See Chapters 5 and 6; notably, these limits often include which EWMs can formally hold water for the purpose of instream flows; as well as limits on the capacity of the EWMs to buy and sell water rights.

¹² For example, there are constraints on who can hold water in the western USA for the purpose of environmental benefit (see Chapter 6, Tables 10-12) and how environmental water can be traded in south-eastern Australia (see Chapter 5, eg, *Water Act 2007* (Cth) s 106).

¹³ See, eg, Australian Government, *Commonwealth Environmental Water: Trading Framework* (Commonwealth Environmental Water Office, 2014).

¹⁴ See, eg, Columbia Basin Water Transactions Program, *Annual Report 2012: A Decade of Outcomes 2003-2012* (National Fish and Wildlife Foundation, 2012).

A. Creation of the EWMs: Legal Form

The EWMs of south-eastern Australia and the western USA use a variety of legal methods to create legal personhood. The most significant difference in legal form depends on whether the organisation is part of government, or an independent, private entity.

1. Non-government EWMs

The simplest way of creating legal personhood is used by the non-government organisations in each jurisdiction: the corporate form.¹⁵ In the USA, this is the not-profit corporation, which is incorporated under the relevant state legislation¹⁶ and operates under the US Internal Revenue Code as either a 501(c)(3) or (4) entity.¹⁷ The main distinction between these two designations relates to the role of the organisation in influencing political outcomes or legislation. A 501(c)(3) organisation is prohibited from engaging in lobbying or political activities, or it risks losing its not-profit designation. A 501(c)(4) organisation, on the other hand, may engage in political activities as long as it is consistent with the purpose of the organisation, and their role in promoting social welfare. Most of the non-government EWMs in the western USA have chosen to incorporate as 501(c)(3) organisations, and avoid being seen as overtly ‘political’ actors. One of the rare 501(c)(4) examples is the National Fish and Wildlife Foundation (NFWF), and the importance of that difference is primarily related to how they receive funding:

We have a unique designation by Congress, which allows NFWF to partner with federal agencies to leverage their dollars with non-federal dollars. That unique legal form positions us in a way that other funders aren’t positioned.¹⁸

Interestingly, NFWF is an example of the exception that proves the rule: although it does have legal personhood, it does not act as an EWM, except for some very limited circumstances in Nevada, where it owns both land and water rights as an interim step before converting the land to dryland farming.¹⁹ In general, the formal construction of

¹⁵ See Chapters 5 and 6 for a comprehensive review of the legal personhood of the EWMs in each case study.

¹⁶ For examples of these forms and the relevant legislation, see Chapter 6, Tables 11 and 12.

¹⁷ *Internal Revenue Code* 26 U.S.C. § 501(c).

¹⁸ Interview NFWF.

¹⁹ This is also an exception to the ‘buy it up and dry it up’ philosophy, and is undertaken by an organisation that is not generally operating as an EWM. This activity is limited to the specific environmental water programs in Nevada (which is also outside the case study boundaries, and has been included for completeness).

NGO EWMs in the western USA frames the EWMs as non-threatening, charitable organisations, beholden to the community in which they operate:

we're speaking out for the work, but we walk a fine line... our mission doesn't involve sustainable agriculture, but we have to make it work for the agriculture community too.²⁰

In Australia, the non-government EWMs use a variety of legal forms, including the incorporated association (an inexpensive way to establish an incorporated entity under state legislation) and a trust, where the trustee is a registered company under the *Australian Corporations Act 2001* (Cth).²¹ In each case, the organisation has focused on finding the specific form that best suits their needs:

[I]t hasn't mattered for us. It might be an issue if you had a larger amount of water that was being provided to you, by say the federal government, they might have some further requirements about what sort of company structure you have, organisational structure, but for us it's never mattered.²²

2. Government EWMs

The situation is more complicated for government organisations. In both Australia and the USA, the government EWMs face the challenge common to statutory agencies, of creating separate legal personhood while retaining the connection to the democratic process.²³ In 2010, Hendry argued that the corporatization of water service provision was a way to 'regulate the public sector in a similar manner to the private sector and thereby the institute comparable efficiencies, whilst still maintaining a public sector ethos'.²⁴

Government-owned corporations are often termed 'quangos' or 'qagos': quasi-government organisations that operate with a significantly greater degree of independence than government departments, and with very different expectations placed on their staff (although those staff may retain their formal designation as public servants).²⁵

²⁰ Interview CFC.

²¹ For examples of these forms and the relevant legislation, see Chapter 5, Table 8.

²² Interview HRA.

²³ Marshall E Dimock, 'Government corporations: a focus of policy and administration, I' (1949) 43(5) *The American Political Science Review* 899; Sir Richard Boyer, 'The Statutory Corporation as a Democratic Device' (1957) 16(1) *Australian journal of public administration* 29; A Barker, 'Quangos in Politics' (2001) <http://dx.doi.org.ezp.lib.unimelb.edu.au/10.1016/Bo-08-043076-7/01219-5> *International Encyclopedia of the Social & Behavioral Sciences* 12631.

²⁴ Sarah Hendry, 'Ownership Models for Water Services: Implications for Regulation' in Aileen McHarg et al (eds), *Property and the Law in Natural Resources* (Oxford University Press, 2010) 257, 276.

²⁵ R L Wettenhall, 'Quangos, Quagos and the problems of Non-Ministerial Organisation' (1983) 42(1) *Australian journal of public administration* 5.

In south-eastern Australia, corporatization has been explicitly adopted by the states as a way of introducing commercial operating principles (including cost recovery, transparency and independence) to the provision and management of water services.²⁶ For the Victorian Environmental Water Holder, a statutory corporation,²⁷ being the same formal type of organisation as the other water authorities was considered to be an important factor in the choice of legal form:

[T]he body corporate provides... the VEWH a better standing in the industry... The legislation was changed so that all the water corporations would be the same organisational form; if you have another part of that water industry, why wouldn't you use the same model [the corporate form]?... I believe it's sending the right signals on what a professional organisation needs to be and that it is a legitimate user of water...²⁸

The staff of the Victorian Environmental Water Holder (VEWH) were also more likely to consider that the legal form was important, and to be able to relate nature of the corporate form to specific outcomes for the organisation:

There is a sharper focus because you know that you can sue or be sued, you know that you have that legal personality.²⁹

The organisational form does matter; it ensures that there is a discipline in its objectives and what the VEWH is trying to achieve.³⁰

The corporate form probably has got advantages because it brings awareness of responsibilities and accountabilities, there is no one to hide behind, you have to establish policies and practices that are right for you.³¹

However, the staff of the Commonwealth Environmental Water Office, which supports the activities of Commonwealth Environmental Water Holder (a statutory legal person but not a separate body corporate),³² were much more ambivalent about the importance of legal form:

I don't think it really does matter too much.³³

I don't really know why this form was used... We've got what we've got, and we're working with that...³⁴

²⁶ See, for example, Department of Sustainability and Environment (Vic), *Victorian Government White Paper: Securing Our Water Future Together* (State of Victoria, 2004), chapters 6 and 7.

²⁷ *Water Act 1989* (Vic) s 33DB.

²⁸ Interview VEWH 3.

²⁹ Interview VEWH 1.

³⁰ Interview VEWH 3.

³¹ Interview VEWH 1.

³² *Water Act 2007* (Cth) ss 105-117.

³³ Interview CEWO 1.

Both Australia and the USA include examples of government departments with limited legal personality to enable them to hold and manage water rights.³⁵ In Australia, government departments can be the environmental water licence holder, which is the case in New South Wales, after the Riverbank program was re-absorbed into the government department: 'the [team] which provides the environmental water governance unit support...That unit is the water licence holder.'³⁶

In South Australia, where plans to potentially create a separate environmental water holder have been shelved for now:³⁷ '[t]he Minister's licence acts as a surrogate environmental water holder.'³⁸

In the western USA, each state has a government department or government agency that holds instream flow rights on behalf of the environment.³⁹ Like Australia,⁴⁰ these government organisations are often responsible for multiple objectives, which can blur their accountability for managing instream flows for environmental outcomes.⁴¹ In Colorado, for example, the instream flows program is part of the Colorado Water Conservation Board:

Our agency has a lot of different functions, and instream flow is just one... It's a water policy and planning agency, we're all state employees, and the state agency is under the umbrella of the Department of Natural Resources, similar to Colorado Parks and Wildlife and the Division of Water Resources, our sister agencies in the same department.⁴²

In Washington, the instream flow rights are held in trust by the Washington Department of Ecology:

³⁴ Interview CEWO 2.

³⁵ See Chapter 5, Table 8 and Chapter 6, Tables 11 and 12.

³⁶ Interview OEH.

³⁷ See Chapter 5, 127.

³⁸ Interview DEWNR.

³⁹ See, for example, Sasha Charney, *Decades Down the Road: an Analysis of Instream Flow Programs in Colorado and the Western United States* (Colorado Water Conservation Board, 2005); Edna T Loehman and Sasha Charney, 'Further Down the Road to Sustainable Environmental Flows: Funding, Management Activities and Governance for Six Western US states' (2011) 36(7) *Water International* 873.

⁴⁰ See Chapter 5, Tables 8 and 9.

⁴¹ See Chapter 6, Tables 10-13

⁴² Interview CWCB.

We are a state government agency... The trust water right program is operated within the Department of Ecology, in the Water Resources Program... It acts as a bank vault – where water rights are put to prevent relinquishment; it's a structural mechanism.⁴³

We have no board or commission, which can be good for leaving politics behind, but we can also be seen as out of control and making decisions in private; we make every effort to show elected officials that we're trying to engage the public in our processes.⁴⁴

3. *The Importance of Legal Form and Independence*

Chapters 2 and 3 established the crucial importance of the legal rights and powers of an entity in establishing legal personality.⁴⁵ For the EWMs, these rights and powers are established by the legal form used to create the EWM, which makes legal form particularly important. In addition, a separate legal form enables the decisions and actions of the EWMs to be treated as distinctly environmental, and separate to the broader policies of the government.

However, the ambiguity expressed by some of the EWM staff about the importance of legal form (see above) may simply reflect a lack of awareness of the ramifications of specific legal forms. In both case studies, the EWM staff were very clear about the importance of organisational form for independence and accountability, even where they were less clear about the particular importance of legal form. In Australia, the desirability of independence and accountability in the government EWMs focused on the importance of being seen as separate to the politics of the government(s) of the day. Staff from the CEWH believed that '[i]t's implicit in the legislation that it was quite a deliberate thing to separate it from the politics of the government of the day'.⁴⁶

However, although the Office of Commonwealth Environmental Water was created to establish a 'firewall between management and purchase'⁴⁷ of environmental water rights, the CEWH is still perceived by others as being too close to the government department: 'I'm well aware of criticisms and public perceptions of the CEWH because it's not a separate organisation.'⁴⁸

⁴³ Interview WDE 1.

⁴⁴ Interview WDE 2.

⁴⁵ See Chapter 2, 52; Chapter 3, 73; and Naffine, *Law's Meaning of Life*, above n 10.

⁴⁶ Interview CEWO 2.

⁴⁷ Interview CEWO 2.

⁴⁸ Interview VEWH 1.

This potential for conflation of the CEWH with the Australian federal government creates problems for the identifiability of the EWM, and makes it difficult for individuals to hold the CEWH to account for its environmental water decisions (as distinct to whole-of-government policies). From the perspective of irrigators participating in the water market, the conflation of the CEWH (the decision-maker) with the water purchase program in the Murray-Darling Basin also exacerbates their fear of the CEWH: '[t]his places irrigators with small pockets in the same marketplace as the Commonwealth with large deep pockets'.⁴⁹

In Victoria, the staff of the VEWH linked its statutory form to permanence, as well as providing some insulation from changing political mores:

Statutory is good – it ensures legitimacy; the VEWH is in legislation, [it] can't be written off with a stroke of a pen... What is important are the specifics of how VEWH is independent is in legislation; limits on Minister's direction power.⁵⁰

In Victoria, this independence is enshrined in statute, by firstly creating the VEWH as a statutory body corporate, a legally distinct organisation to the department and the Minister;⁵¹ and secondly, by preventing the Minister from directing the VEWH on how to use its available water in any given year.⁵² The Minister may set rules for the operation of the VEWH in the longer term, but the decisions of the VEWH are insulated from political interference in the short term.⁵³ The separation from the relevant government department was also considered as important for the VEWH:

Separate from DSE is incredibly useful and important [it's a] separation of policy and service delivery... [the VEWH] doesn't set policy but is a service delivery agent; this is very much a benefit and emphasises independence of decision-making.⁵⁴

The persistent concerns about the CEWH being too close to government, and the ability of the VEWH to differentiate itself from government can be traced to two critical differences between the legal forms of the VEWH and the CEWH: firstly, the VEWH is

⁴⁹ National Farmers' Federation, *Submission to Productivity Commission's Draft Research Report: Market Mechanisms for Recovering Water in the Murray-Darling Basin* (National Farmers' Federation, 2010), 14. Although this report was cautioning against the direct purchase of water rights on the open water market (which the CEWO has avoided by using separate tender programs), it underscores the persistent fear of a well-resourced, legally powerful EWM.

⁵⁰ Interview VEWH 2.

⁵¹ *Water Act 1989* (Vic) s 33DB.

⁵² *Water Act 1989* (Vic) s 33DS(2).

⁵³ See discussion in Erin O'Donnell, 'Institutional Reform in Environmental Water Management: the New Victorian Environmental Water Holder' (2012) 22 *Journal of Water Law* 73.

⁵⁴ Interview VEWH 2.

explicitly insulated from Ministerial interference, a protection that the CEWH does not have.⁵⁵ Secondly, the VEWH is a statutory body corporate, which gives it distinct legal personality and formally establishes its separation from the government department. In addition, the CEWH is undertaking the more politically sensitive activity of water recovery, whereas the VEWH is responsible for managing water that has already been recovered.

In the western USA, formal separation of the EWM from government was seen as crucial, and the acquisition of water rights has been outsourced to private EWMs (although they can receive government funding):

I think that a non-profit organisation is much better equipped to work with private land owners than the government... the main benefit of the non-profit: they can have conversations that government can't have with people about their property.⁵⁶

Further, the specific creation of the NGO EWMs in the USA as not-profit organisations who do not profit from the environmental water transaction was also critical:

In this work, being independent and non-regulatory, with no ties, and also non-profit, that was a much better combination and structure. As a non-profit, people are less scared about somebody making money off their water. Tea Party folks still think you are; but we don't hold any of the water, and we don't function as a land trust (which always will buy at a discount and resell and profit from the sale). The state itself does buy water, but there's so much more suspicion about going to a regulatory agency, you're much less likely to have someone calling you up and saying 'hey, let's do a deal'.⁵⁷

Even though the NGO EWMs in many states in the western USA must legally transfer the acquired water right to the nominated government department to enable this water to be considered as instream flows, it is the NGO EWM who remains the face of the water transaction in the eyes of the community.

Whilst the role of NGO EWMs in Australia is much more limited to date, EWM staff still considered that the not-profit, non-government form of the organisation could be critical to success of environmental water recovery: 'because of the sort of organisation we were, we got agreement and provided the water'.⁵⁸

⁵⁵ In 2010, this vulnerability was publicised in the federal election, where the then opposition party campaigned on a platform that included a commitment to issue directions to the CEWH on how and where to use its environmental water, see Liberal Party of Australia, *The Coalition's Plan for Real Action on the Murray-Darling Basin* (Liberal Party of Australia, 2010).

⁵⁶ Interview DRC.

⁵⁷ Interview WWT.

⁵⁸ Interview HRA.

In summary, this section demonstrates that the different legal forms of the EWMs in both south-eastern Australia and the western USA create organisations with different legal capacities.⁵⁹ All have the formal legal capacity to acquire and hold water rights, to sue and be sued and to enter contracts.⁶⁰ However, although the EWMs have been established in order to facilitate transfer of water rights to the environment as easily as if it were another irrigator, they are also limited by the law in ways that other water users, particularly other irrigators, are not constrained.

In addition, the EWMs have chosen to emphasise some legal powers over others, so that their legal personhood is constructed by a combination of their specific legal powers, and the choices that they make. These choices reflect and reinforce the narratives that have emerged about the nature and role of the EWMs in each jurisdiction.

B. *Choices: Which Personhood Powers are the EWMs Using?*

Legal personality is therefore shifting and variable.⁶¹

The constructivist approach to legal personality developed by Naffine emphasises the specific combination of legal rights and powers associated with a particular legal entity:⁶² legal personhood is thus an expression of both form and function. The EWMs of the two case studies choose to use subsets of their formal legal powers⁶³ to undertake their specific activities (Table 14).⁶⁴ These choices act as self-imposed restraints on their legal personalities.

In the Columbia Basin and Colorado, the EWMs are explicitly position themselves as non-threatening and non-political. The relationship between the state agencies and the NGOs further strengthens this narrative, by limiting the role of government in negotiating with individuals, and limiting the perceived power of the NGO EWMs by requiring them (in most cases) to transfer the instream flow rights to the government agency. In Australia, the law also emphasises the non-political role of EWMs: the government EWMs attempt to create firewalls between their decisions and broader

⁵⁹ For more detail on the specific legal forms and powers, refer to Tables 8, 11 and 12.

⁶⁰ See Chapters 5 and 6.

⁶¹ Naffine, *Law's Meaning of Life*, above n 10, 30.

⁶² Ibid.

⁶³ See Tables 8, 11 and 12.

⁶⁴ For more detail on the examples used in this table, see Chapters 5 and 6.

government policy; and government EWMs are beginning to use the NGO EWMs as the faces of community engagement, in both water recovery and water management.⁶⁵

Table 14 Activities undertaken by the EWMs in the two case study locations

Environmental water activity	EWMs of south-eastern Australia	EWMs of Columbia Basin and Colorado	Examples
Negotiate with existing water users on potential acquisitions		X	NGO EWMs, such as Washington Water Trust. ⁶⁶
Buy water from other water users	X	X	Mainly NGO EWMs in the USA. ⁶⁷ Mainly government agencies on behalf of EWMs in Australia. ⁶⁸
Hold water entitlements	X	X	All EWMs.
Hold water entitlements for environmental use	X	X	All EWMs in Australia. Designated EWMs in USA. ⁶⁹
Make decisions on how water entitlements will be used (including trade, use instream or use in wetlands)	X	X	Australian government EWMs were formally established to perform this function. ⁷⁰ USA EWMs may be limited in their ability to use or trade instream flows. ⁷¹
Enforce water rights (in court if necessary)		X	USA EWMs rely on this ability in complaints-based regulation. ⁷² Australian EWMs rely on river operators to do this.
Attract donations and acquire tax deductibility status	X	X	NGO EWMs in both Australia and the USA. ⁷³
Participate in water policy debates as a water user	X		Australian EWMs such as the CEWH, as well as some NGOs, such as Murray-Darling Wetlands. ⁷⁴

Table 14 shows that, in each jurisdiction, the EWMs have adapted their legal personalities to meet their specific needs by the *choices* they make about which specific legal powers to use. Although there are differences in the specific legal powers that are

⁶⁵ Commonwealth Environmental Water Office and Nature Foundation SA, *Press Release: Commonwealth Works with Nature Foundation South Australia to Deliver Water (24 October)* (Commonwealth Environmental Water Office and Nature Foundation SA, 2012).

⁶⁶ See Chapter 6.

⁶⁷ See Chapter 6.

⁶⁸ See Chapter 5.

⁶⁹ See Table 10.

⁷⁰ See Chapter 5.

⁷¹ See Chapter 6.

⁷² See Chapter 6.

⁷³ See Chapters 5 and 6.

⁷⁴ Chapter 5.

considered to be 'off-limits', there is a common outcome across both case studies: the EWMs operate to construct *themselves* by their reluctance to use their full suite of legal powers.

Further examination of these choices exposes the slightly different dominant narratives about the role of the EWMs in water resource management in each case study. In south-eastern Australia, the EWMs have adopted the narrative of being 'just another user' of water, which aligns most strongly with the construction of the aquatic environment as a legal person, capable of looking after itself. In the Columbia Basin and Colorado, the EWMs are framing themselves as collaborators with the community of water users, which is much more dependent on an ongoing public interest in protecting the environment (and the construction of the aquatic environment as a legal object).

Understanding the way the choices of the EWMs operate to reinforce particular cultural narratives can give insight into how the EWMs interact with their legal and social contexts.

1. *EWMs of South-Eastern Australia: Just Another User*

We're a water user; we're another water user, we need to be regulated like everyone else.⁷⁵

The impetus for environmental water recovery in south-eastern Australia originated in the severe degradation of the Murray-Darling Basin, and emphasised the need to *protect* the aquatic environment.⁷⁶ However, experience quickly demonstrated the essential importance of a *voice* for the aquatic environment, and the capacity to engage in both the policy debates and the decisions about how and when environmental water was used.⁷⁷ A voice for the environment explicitly engages private interest theories of regulation, and the narrative that the environment can, and should, look after itself.⁷⁸

One of the lessons of the severe millennium drought in south-eastern Australia was that the environment would be best protected during drought by holding water rights that were legally almost identical to those of other water users, and establishing the

⁷⁵ Interview OEH.

⁷⁶ See Chapter 2, 30; and Chapter 5, 110.

⁷⁷ See Daniel Connell, 'The Role of the Commonwealth Environmental Water Holder' in Daniel Connell, and R. Quentin Grafton (ed), *Basin Futures: Water Reform in the Murray-Darling Basin* (ANU E Press, 2011) 982; see also O'Donnell, 'New Victorian Environmental Water Holder', above n 53.

⁷⁸ Chapter 3, 85.

environment as a legal person with the same legal rights as other water users.⁷⁹ For example, in New South Wales, newly approved water plans that had protected environmental flows using procedural mechanisms were suspended from 2006-2010, to ensure water supplies for consumptive users.⁸⁰ In Victoria, a legal mechanism in the *Water Act 1989* enables the Minister for Water to temporarily 'qualify' legal rights to water, in the event that there is insufficient water to meet all demands.⁸¹ During the drought, environmental flows that were provided by a condition on another water right (as opposed to being a water right themselves) were cut to support basic water supplies for domestic and stock purposes. These qualifications also affected environmental water rights, transferring water from the environment to domestic uses in the Thomson and Yarra Rivers to support the city of Melbourne's water demands.⁸² Interestingly, only environmental water that had *fewer* legal protections, or *more* legal protections, than water rights of other users was affected by these qualifications. In the Thomson and Yarra Rivers, the entitlements which created the environmental water rights gave the environment the right to the first water entering the storage: the highest reliability water available.⁸³ Where the environment held legal rights to water that were essentially the same as those held by other water users, this water remained available to the environment in Victoria.⁸⁴ Ever since, both water recovery and water management by EWMs in Australia has emphasised the similarity of their rights to other water users, and continues to position the government EWMs (the VEWL and the CEWL) as 'just another user'⁸⁵ of water.⁸⁶

As a result, the EWMs of south-eastern Australia focus on the legal powers that enable them to operate as any other water user (such as the powers to acquire, hold, use and

⁷⁹ See Chapter 5, 120.

⁸⁰ NSW Department of Primary Industries, *Drought Management* (2016) <<http://www.water.nsw.gov.au/water-management/water-availability/drought-management>>.

⁸¹ *Water Act 1989* (Vic) s 33AAA.

⁸² See West Gippsland Catchment Management Authority, *Drought Measures - Thomson EWR* (West Gippsland Catchment Management Authority, 20 January 2010); Department of Sustainability and Environment (Vic), *Victorian Water Accounts 2006-2007* (State of Victoria, 2008); Department of Sustainability and Environment (Vic), *Victorian Water Accounts 2007-2008* (State of Victoria, 2010); Department of Sustainability and Environment (Vic), *Victorian Water Accounts 2008-2009* (State of Victoria, 2010).

⁸³ See, for example, *Bulk Entitlement (Thomson River - Environment) Order 2005*; *Yarra Environmental Entitlement 2006*.

⁸⁴ See discussion in O'Donnell, 'New Victorian Environmental Water Holder', above n 93.

⁸⁵ Interview CEWO 1.

⁸⁶ Chapter 5, 133.

trade water rights), even though it is clear in law that they are not.⁸⁷ Firstly, the EWMs have attempted to rely on the existing output-focused paradigm of water use⁸⁸ to legitimize their actions in the eyes of the public, and other water users. This output focus reflects the prevailing efficiency norm in Australian water resource management, exemplified by the water markets.⁸⁹ Australian EWMs, especially the two largest (the VEWH and the CEWH), emphasise the volume of water they hold, and account for where and how that water has been used.⁹⁰ Even the phrasing used by a government staff member in NSW reflected this emphasis on outputs, and an attempt to frame the EWMs as an irrigator: '[d]id we grow a population of fish? Did we not grow carp?'⁹¹

However, attempting to behave as just another user has caused problems for the government EWMs in particular. The CEWH attempted to rely on the legitimacy of market processes in guiding water management activities, which meant it was slow to react to concerns about its market power.⁹² The CEWH was also slow to understand the potential for conflation between the CEWH decisions and that of the government department responsible for water recovery: '[f]or many people, it's just government – someone representing rules and requirements, the level of government (Local, State, Federal) is not relevant'.⁹³

Furthermore, it was not until 2012 that the CEWH formalized a relationship with a community-based NGO EWM to help manage environmental water.⁹⁴ The local partner,

⁸⁷ The government EWMs face specific limits on their capacity to buy and sell water that do not affect irrigators, eg, *Water Act 2007* (Cth) s 106 and *Water Act 1989* (Vic) s48OB.

⁸⁸ This output focus extends from the Dublin principles about the need to account for use of water for commercial purposes, and is entrenched in the water accounting frameworks of south-eastern Australia. Every commercial user of water in south-eastern Australia has their use of water recorded by water meters, which are read by government officials, to ensure compliance at an individual and basin-wide scale.

⁸⁹ See Chapter 2, 37 and Chapter 5, 115, 133.

⁹⁰ See, eg, Department of Sustainability and Environment (Vic), *Environmental Watering in Victoria 2007/08* (State of Victoria, 2009); Department of Sustainability and Environment (Vic), *Environmental Watering in Victoria 2008/2009* (State of Victoria, 2010); Department of Sustainability and Environment (Vic), *Environmental Watering in Victoria 2009/10* (State of Victoria, 2010).

⁹¹ Interview OEH. In the Australian context, carp is an introduced species and classified as a pest, so finding ways to inhibit population growth of carp is an important goal for EWMs.

⁹² A discussion paper on trading activities was not released until 2011, and this only considered further trade, not water purchase, see Australian Government, *Commonwealth Environmental Water - Trading Arrangements Discussion Paper* (Commonwealth Environmental Water, 2011).

⁹³ Interview OEH.

⁹⁴ Commonwealth Environmental Water Office and Nature Foundation SA, above n 65.

Water For Nature, is a water trust established by Nature Foundation SA, an environmental charity. Water For Nature makes proposals to the CEWH each year for use of the water, and these sites, in addition to their environmental outcomes, also emphasise the 'potential for strong partnerships with the river community, local community organisations, irrigators and corporates'.⁹⁵ This partnership demonstrated a growing awareness of the importance of both the process and the outcomes⁹⁶ for environmental water management, and was the first time the government EWMs of Australia explicitly acknowledged the need to engage local people, including other water users, in the making of decisions as well as the outcomes of the watering.⁹⁷

Secondly, the EWMs of south-eastern Australia have attempted to position themselves as just another user of water to represent the environment on water services committees. These committees are forums for water users (typically irrigators) to provide feedback to water authorities about the delivery and management of their water rights.⁹⁸ This is a customer-service model, and the CEWH attends some of these committees as another customer:

I see the CEWH as the representative of the environment in the market at the Commonwealth level... I think it represents the environment quite strongly. If you look at NSW, we participate on the customer service committees for state water in every catchment, we go to those forums to put forward the view of the environment's needs in terms of the system operations; we provide input to water sharing plan amendments in terms of what will lead to the best environmental outcome.⁹⁹

Whilst this activity is framed as a way to seek 'changes to the way the system operates to get better environmental outcomes',¹⁰⁰ the capacity for the EWMs to influence outcomes is now framed as contingent on their role as large water users (and their construction as legal persons), rather than because it is fundamentally important to protect the

⁹⁵ Nature Foundation SA, *Water For Nature: Our Work*

<<https://www.naturefoundation.org.au/what-we-do/water-for-nature/our-work>>.

⁹⁶ See discussion of 'input' and 'output' legitimacy in Karl Høgl et al, 'Legitimacy and Effectiveness of Environmental Governance – Concepts and Perspectives' in Karl Høgl et al (eds), *Environmental Governance: The Challenge of Legitimacy and Effectiveness* (Edward Elgar, online ed, 2012) 1.

⁹⁷ Both input and output legitimacy are important to environmental watering, see Dustin Garrick and Erin O'Donnell, 'Exploring Private Roles in Environmental Watering in Australia and the US' in Jeff Bennett (ed), *Protecting the Environment, Privately* (World Scientific Publishing, 2016) 203.

⁹⁸ See, for example, Water NSW, *Customer Services Committees* <<http://www.watarnsw.com.au/customer-service/feedback/committees>>.

⁹⁹ Interview CEWO 1.

¹⁰⁰ Interview CEWO 1.

environment.¹⁰¹ A remark from a VEWH staff member shows the difficulty in framing the environment as a customer, whilst also not being seen as seeking ‘special’ treatment: ‘[the] environment is now the largest customer, so the arrangements will have to be different to a normal irrigator, but without bias of course’.¹⁰²

Interestingly, this shift in the narrative in Australia was predicted by Paul Humphries back in 2008, in the first year of the CEWH’s existence and two years before the VEWH was established:

[T]he environment becomes just another user, or worse, client, and when it needs more water, it – the government, or us, actually – has to pay for it. It would seem logical to give a substance absolutely critical to maintaining the function of a system, upon which other systems are based, the highest priority. Instead, we have put it on level footing with other users, which might be fine if we knew how much water was needed (and when) to maintain that functioning system. But we don’t!¹⁰³

In sum, Australian EWMs tend to use their formal construction as a legal person to frame themselves as just another user of water. This enables them to draw on the power of being ‘the largest irrigator’ in the system to give them a voice in water policy.¹⁰⁴ Using this irrigator framing, the Australian EWMs have focused on demonstrating effective and efficient acquisition and use of water, and have historically relied on demonstrating ‘output legitimacy’, which focuses on the outcomes achieved as the driver of mutual acceptance and support.¹⁰⁵ The Australian EWMs have only very recently, and in a very small way, started to re-engage with communities about what they want from their aquatic environment, and their water.¹⁰⁶

2. *EWMs of Columbia Basin and Colorado: Collaborator*

In Montana, the story of that legislation is the story of Trout Unlimited and collaboration.¹⁰⁷

¹⁰¹ Chapter 5, 133.

¹⁰² Interview VEWH 3.

¹⁰³ Paul Humphries, ‘The Drought We Had to Have?’ (Science Alert, 15 August 2008) <http://www.sciencealert.com/opinions/20081508-17809-4.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%25253A+sciencealert-latestnews+%252528ScienceAlert-Latest+Stories%252529>.

¹⁰⁴ See, for example, Warwick Long, ‘Coalition split as Commonwealth Environmental Water Holder stays with Environment Department’ (23 September 2015) <<http://www.abc.net.au/news/2015-09-23/anger-over-environmental-water-holder-split-from-water-departmen/6797094>>; Warwick Long, ‘Increase the flow: Irrigators call on authorities to increase floodwaters in the Murray-Darling Basin’ *ABC Rural* (online) 15 September 2016 <<http://www.abc.net.au/news/2016-09-15/flood-the-murray-darling-basin/7844736>>.

¹⁰⁵ Hogg et al, above n 96.

¹⁰⁶ See eg, Commonwealth Environmental Water Office and Nature Foundation SA, above n 65.

¹⁰⁷ Interview TUM.

The EWMs of the Columbia Basin and Colorado have framed their creation and operation as a collaborator with other water users, not a competitor. This framing relies on a consensus-based public interest to protect the aquatic environment, and sits within the narrative that the environment should be protected, because it cannot (or will not) protect itself.¹⁰⁸

The emergence of the EWMs in the western USA was strongly influenced by the controversy and long-term litigation under the *Endangered Species Act* in the 1980s and 1990s.¹⁰⁹ A Trout Unlimited staff member commented: 'I was very dedicated to the idea that you could take an issue as controversial as the spotted owl, and find a different path and build it differently from the ground up'.¹¹⁰

The staff of the EWMs, particularly the NGOs, very early adopted the explicit approach of building consensus and collaborating with communities to solve the problem of dewatered streams, rather than relying on unpopular and unpredictable litigation.¹¹¹ The EWMs deliberately established themselves as different to other environmental organisations:

[T]he other environmental groups were doing other things (legislation, studies, advocacy, policy, wild and scenic designations, litigation), we were the only group focused on collaboration and projects on the ground.¹¹²

The emphasis on collaboration has also become a central element in the narrative of success for NGO EWMs:

It's more effective, you can move much more quickly to put water instream by offering incentives and compensation rather than using the ESA and litigating for five years. You can get there that way, but you alienate everyone. You're not changing behaviour, you're just forcing people into an enclosure,

¹⁰⁸ Chapter 3, 83.

¹⁰⁹ For more on this litigation, see eg, Barry R Noon and Kevin S McKelvey, 'Management of the Spotted Owl: A Case History in Conservation Biology' (1996) 27 *Annual Review of Ecological Systems* 135.

¹¹⁰ Interview TUM.

¹¹¹ See, for example, *A Decade of Outcomes*, above n 14; D Garrick et al, 'Water Markets and Freshwater Ecosystem Services: Policy Reform and Implementation in the Columbia and Murray-Darling Basins' (2009) 69 *Ecological Economics* 366; Brandon Scarborough, *Environmental Water Markets: Restoring Streams Through Trade* (Property and Environment Research Centre, 2010); Steven Malloch, *Liquid Assets: Protecting and Restoring the West's Rivers and Wetlands through Environmental Water Transactions* (Trout Unlimited, 2005).

¹¹² Interview CWT.

you're not changing behaviour that way. Even though you have to still have the regulation, you have to have the option for them to do something of their own volition.¹¹³

The EWMs in the Columbia Basin and Colorado also frame the water transactions as part of the collaborative process, which is a distinct difference to the Australian experience, where water purchase is undertaken at arms' length through a tender process.¹¹⁴ The EWMs of the western USA have managed to use the ability to pay for water rights as a mechanism to enhance the collaborative experience:

[T]his would all be done in an environment of collaboration... The basis of the conversation rests on the agreement that we aren't actually trying to take anything away, we're trying to determine the value and the just compensation for that asset. It does put us squarely in the arena of a business negotiation, not a legal coercion or threat of litigation or that kind of thing.¹¹⁵

This is a powerful reframing of water transactions: instead of being part of a market process, where decisions are made based solely based on the price of water, the water transactions are being used to enhance the legitimacy of the environmental water recovery in the eyes of water users and the broader community. This ability of the EWMs of the western USA to construct their water transactions as part of a set of social norms based on trust and mutual respect demonstrates the possibility of using market mechanisms without necessarily adopting market norms.¹¹⁶ It is worth noting that this reframing is part of a response to the relative inactivity of western USA water markets,¹¹⁷ and the associated increase in transaction costs means it may not have been considered as desirable if water could simply have been purchased from willing sellers, as was possible in Australia.¹¹⁸ However, it remains a useful lesson for EWMs: it is not necessary to cede the narrative of the environment as deserving protection in order to make use of water transactions.

¹¹³ Interview WWT.

¹¹⁴ See Chapter 5, 135.

¹¹⁵ Interview DRC.

¹¹⁶ This is particularly important, as market norms can override social norms, and evidence suggests that it can be hard to reinstate social norms once market norms have been adopted. Market norms are the behaviours that facilitate interaction between market participants, such as value for money, and payment for services, and are identified as different to other 'social' norms, such as loyalty or friendship; see discussion in Chapter 8, 244.

¹¹⁷ See Chapter 6, 157.

¹¹⁸ Productivity Commission, *Market Mechanisms for Recovering Water in the Murray-Darling Basin (Final Report, March)* (Productivity Commission, 2010); Garrick et al, above n 111; Dustin Evan Garrick, *Water Allocation in Rivers Under Pressure: Water Trading, Transaction Costs, and Transboundary Governance in the Western USA and Australia* (Edward Elgar, 2015).

Although the EWMs of the western USA have successfully framed water transactions for instream flows as collaborative, the emphasis on collaboration and community support is also a significant weakness of environmental water recovery.¹¹⁹ The EWMs, despite having the requisite legal powers to undertake transactions with anyone, and to set their own targets and goals, remain reluctant to impose these on the community. In the Deschutes River basin, the Deschutes River Conservancy is explicitly elevating the community agreement on the level of environmental health of the rivers above that of the ecological science:

That's where the community comes in – it will be their decision as to whether the creek is restored or not, the DRC ought to listen and respond to them.¹²⁰

In Montana, the Clark Fork Coalition acknowledges that water transactions are 'always dependent on a willing land owner',¹²¹ and that:

The biggest concern is validation and objections; landowners get peer pressure from neighbours who are disapproving of them selling water to the Clark Fork Coalition.¹²²

The trust and partnership that the NGO EWMs, in particular, rely on to successfully initiate and complete water transactions is dependent on the EWMs not forcing the issue:

The sophisticated water user community understands who we are, trusts us, they don't feel threatened, we're a resource, we can partner with them, we bring perspectives and creative solutions that will work for them. If we ever figure out something that is not right, we walk quietly away and don't create problems for them. This trust building has been really critical.¹²³

Even more explicitly, one staff member emphasised that success itself is about the partnership, not necessarily the actual outcome:

¹¹⁹ See discussion in P L Tan, K H Bowmer and C Baldwin, 'Continued Challenges in the Policy and Legal Framework for Collaborative Water Planning' (2012) 474 *Journal of Hydrology* 84; Jayanath Ananda and Wendy Proctor, 'Collaborative Approaches to Water Management and Planning: An Institutional Perspective' (2013) 86 *Ecological Economics* 97; Cameron Holley and Darren Sinclair, 'A New Water Policy Option for Australia? Collaborative Water Governance, Compliance and Enforcement and Audited Self-Management' (2014) 17(2) *Australasian Journal of National Resources Law and Policy* 189.

¹²⁰ Interview DRC.

¹²¹ Interview CFC.

¹²² Interview CFC.

¹²³ Interview CWT.

There's a different character to the instream flow work... There's a lot of celebration of success, but the partnership is always celebrated first. The partnership is the success, and what we manage to accomplish together is secondary.¹²⁴

For the NGO EWMs of the Columbia Basin and Colorado, the environmental water recovery is secondary to building and maintaining the support of the community. This leaves the NGO EWMs extremely vulnerable to changing community attitudes, and has made the process of water recovery slower and more expensive.¹²⁵ The NGO EWMs can be reluctant to make use of their legal personhood powers to fully protect their instream flow rights:

For the period of the lease (when water is in stream) we have to go out and take measurements, we have to make the call to more junior water users (to make them release the water). It can be controversial – some people accept it, some people [say] 'over my dead body'. If the water is being taken by someone else, first we file a complaint with the DNRC; then we litigate. We have not yet had to resort to litigation and it is entirely a last resort.¹²⁶

Although this vulnerability is particularly problematic for the NGO EWMs, which depend much more explicitly on community support, it also affects the government EWMs:

We just got some flows on the Colorado mainstem, and this never would have happened without stakeholder group support...¹²⁷

In Oregon, Washington and Colorado, the state government agency must hold the transferred water rights in order for the water rights to be legally recognised as instream flows.¹²⁸ In many cases, the same government agency is responsible for both holding the instream flows and managing water resources more generally. In Australia, this dual (and often incompatible) responsibility was a significant driver for the creation of independent government agencies to hold and manage environmental water.¹²⁹ In the western USA, this tension can result in the unwillingness of the state agency to enforce instream flow rights:

Another institution – the Oregon Water Resources Department – holds all the instream water rights; because they are the water right holder, they have some discretion to enforce or not enforce their

¹²⁴ Interview TUM.

¹²⁵ Dustin Garrick and Bruce Aylward, 'Transaction Costs and Institutional Performance in Market-Based Environmental Water Allocation' (2012) 88(3) *Land Economics* 536; Garrick, *Water Allocation in Rivers Under Pressure*, above n 118.

¹²⁶ Interview CFC.

¹²⁷ Interview CWCB.

¹²⁸ Chapter 6, Table 10.

¹²⁹ Chapter 5.

own water rights. This is one of the issues that's becoming more important as we put more water instream and increase competition for water rights. It's a politically unpopular decision to enforce their own water rights, but do they then let someone continue to take water and injure their instream water rights? Because they are the water right holder and the regulator, they are in a difficult position. The DRC and the other NGOS are required to take on a watch dog role to make sure they are stewarding and protecting the water rights that are being put instream and granted to them.... When I look at it from the water users' standpoint, I'd be concerned that the state was over-enforcing the instream water rights, I'd be concerned that they were looking out for their interests ahead of other interests. It's not how it's supposed to be, it creates a bit of schizophrenia on the state's part, because of conflict avoidance and politics, typically the state errs on the side of under enforcement of instream flows.¹³⁰

The blurring of the line between the EWM and the government department is a significant constraint on legal personhood, and the government EWMs also acknowledge that they are often caught between the conflicting interests of environmental NGOs and water users:

[W]e're glad the environmental groups are there watching us. It helps us do our jobs better.¹³¹

[E]nvironmental organisations watch and query whether we're enforcing our instream water rights; other water users, they hold us accountable more, if they think we're unreasonable in protecting our rights.¹³²

In these instances, the ability of the NGO EWMs to challenge the government EWMs is legally limited because the NGO EWMs are no longer the legal owner of the instream flow rights:

[B]ecause [the NGO EWM] has a delicate and collaborative relationship with the state, we're not requesting enforcement, we're just pointing out that water rights are not being met and maybe they should do something about it, and that's typically enough to get them to act.¹³³

Even when the government agency is not the only holder of instream flow rights, the attitude of the state government to instream flows reflects this unwillingness to create even the perception that the environment is receiving favourable treatment:

[The state agency] is reluctant to show any special dispensation for environmental transactions. They don't see it as a public benefit or state benefit; so these transactions have as much or more scrutiny as other water transaction.¹³⁴

The government EWMs, in theory, should be less vulnerable than the NGO EWMs to the potential hostility of some members of local communities to particular instream flow

¹³⁰ Interview DRC.

¹³¹ Interview WDE 1.

¹³² Interview CWCB.

¹³³ Interview DRC.

¹³⁴ Interview CFC.

rights; but this is undermined by the duality of the government EWMs role as both a water right holder and a regulator of all water rights. This potential conflict in responsibilities is exacerbated by the narrative of EWMs as collaborators with local communities.

In sum, the EWMs of the Columbia Basin and Colorado are most willing to use legal powers that support their role as a member of their communities, a collaborative actor seeking consensus-based, mutually beneficial solutions. In contrast to the Australian EWMs, these EWMs emphasise what Hogl et al call ‘input legitimacy’: access, equal representation, transparency, accountability, consultation and cooperation, independence and credibility.¹³⁵ The EWMs are reluctant to use their legal powers to pursue zero-sum approaches to environmental water recovery, either in the initial transaction (they are unwilling to ‘buy it up and dry it up’), or in the protection of their instream flow rights (they are reluctant to litigate).¹³⁶ These choices constrain the legal personality of the EWMs, and leave them dependent on the cultural narrative that the aquatic environment should be protected because it is too weak to protect itself.

C. *Competing Narratives and ‘Off-Limits’ Legal Powers*

In both south-eastern Australia and the western USA, the aquatic environment is simultaneously constructed in water law as the socio-ecological concept underpinning the need for sustainable water resource management; a legal object that requires protection by imposing limits on the water use activities of others (such as a cap on water extraction, or modification of dams to meet ESA requirements); and a legal subject, capable of protecting its own interests.¹³⁷ The EWMs of these jurisdictions have to navigate the tension between their own legal form (an entity constructed as a legal subject) and their objectives within water law, which stem from the other, less legally powerful constructs of the aquatic environment. The EWMs in each jurisdiction exhibit a preference for a particular subset of the powers associated with legal personhood as a way to make sense of the tensions between the narratives underpinning the multiple constructions of the aquatic environment. In each jurisdiction, the EWMs have emphasised a particular narrative that has supported their specific form and operations to date.

¹³⁵ Hogl et al, above n 96.

¹³⁶ For more detail, see Chapters 2 and 6.

¹³⁷ See Chapters 5 and 6 for more detail; see also conceptual framework in Chapter 3, 87.

Although the EWMs of southeastern Australia were created in order to improve the health of the aquatic environment,¹³⁸ in their operations, the EWMs have framed themselves as just another irrigator, focusing on their capacity to participate in the market as a competitor with other water users to acquire and manage water.¹³⁹ Although the largest and most powerful EWMs in Australia are government agencies, the Australian approach is more closely aligned with private interest theories of regulation,¹⁴⁰ and the narrative of the environment as capable of acting to protect itself, through the individual EWMs.¹⁴¹ This narrative emphasises the environment as a *user* of water, operating in (and competing for) the policy space with all the other users of water. This narrative depends on the environment having its own voice, and the power to use it.¹⁴² Whilst this narrative supports the construction of the environment as its own advocate, in doing so it undermines the narrative that the environment needs (and deserves) special protections. For example:

[W]hen RiverBank set up, there was a lot of emphasis on a level playing field, if environment was going to participate with [irrigator] licences, then it had to be on same basis as irrigators.¹⁴³

It is perhaps unexpected to observe the dominance of this narrative in the Australian context, where the largest EWMs are government organisations and often perceived as being part of government, but the EWMs have been deliberately created and operated to distance themselves from government agencies.¹⁴⁴

This narrative is not missing from the western USA, but it is much less prevalent. Most of the EWMs emphasised their role as collaborators with other water users, as highlighted above, but it is worth noting that the legal capacity to grant instream flows in the western USA is contingent on recognizing the environment as a beneficial use, the same

¹³⁸ See, for example, *Water Act 2007* (Cth) s 105(3); *Water Act 1989* (Vic) s 33DC(b).

¹³⁹ Although the CEWH in particular was established to improve collaboration between the states in the Murray-Darling Basin in the management of environmental water, it was not explicitly intended to collaborate with water users.

¹⁴⁰ See Chapter 3, 85; see also Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (Cambridge University Press, 1st ed, 2007); Stephen P Croley, 'Theories of Regulation: Incorporating the Administrative Process' (1998) 98(1) *Columbia Law Review* 1.

¹⁴¹ See Chapter 3 and Chapter 5.

¹⁴² Chapter 3, 85.

¹⁴³ Interview OEH.

¹⁴⁴ See discussion in Chapter 7, 196, and in Chapter 5.

as all other recognized uses of water.¹⁴⁵ Government EWMs like the Colorado Water Conservation Board have also attempted to frame themselves as the same as other users when using their legal powers:

To protect our water rights, we participate in other users' water court applications; where necessary, we oppose them and try to prevent injury to our water rights. We operate like another water user in that system.¹⁴⁶

However, as discussed above, this legal capacity is only reluctantly used by even the state EWMs, especially when it demonstrates conflict with their broader roles as water use regulators. More typically, the EWMs of the Columbia Basin and Colorado present themselves largely as community actors, focused on collaborative approaches to improving environmental water quantities. The NGO EWMs typically eschew a combative, litigious approach and focus on working with water users to find ways to improve instream flows without reducing agricultural outputs. Even the government agencies, although historically more likely to enforce their legal rights in court, and with a perceived background of a more contentious approach to water management, have been unwilling to use law and regulation to force a shift in water use by the imposition of caps or new conditions on existing users.¹⁴⁷

By collaborating between water users and the environment, each water transaction generates a local champion, who can speak to the possibility of improving environmental outcomes without sending irrigators out of business.¹⁴⁸ However, this maintenance of the status quo is also likely to be a serious limit on the future water recovery activities of the EWMs.

Interestingly, although the NGO EWMs often act as the 'retail arm' of water recovery to avoid the cultural baggage of 'big government', the ultimate approach is more closely aligned with the narrative of the environment as worthy of protection, but legally weak and ultimately dependent on the actions of humans to protect it.¹⁴⁹ This narrative also relies on a public interest theory of regulation, and constructs the environment as one of

¹⁴⁵ This recognition of the environment as a 'user' of water is the result of embedding the instream flows into an existing prior appropriation water law framework; see Chapter 6.

¹⁴⁶ Interview CWCB.

¹⁴⁷ See Chapter 6.

¹⁴⁸ See, eg, the use of successful stories from participants in *A Decade of Outcomes*, above n 14. It is worth noting that the price the EWMs pay for water rights is usually based on the cost of generating water use efficiency savings, by investing in infrastructure or, for example, buying cattle feed rather than growing it.

¹⁴⁹ Chapter 3, 83.

several public interests that should be balanced by policy makers to generate well-rounded regulation and governance.¹⁵⁰ This emphasis on balance was expressed by both NGO and government EWMs:

[W]e try to balance the activities of mankind with reasonable preservation of natural environment; it is constantly a balancing act that the board does.¹⁵¹

I think the DRC would like itself to be viewed as the place where reasonable people come together to do difficult business. It's a place where people can understand one another's needs, and try to meet those needs, without letting extreme views about the environment, property rights or politics get in the way of doing important business. There's an intentional attempt to avoid being seen as too green or too agriculture-friendly – the DRC is a pretty pragmatic, business minded group of people who can get things done for a lot of different interests.¹⁵²

It's not pitting the environment against anyone else. We're trying to convey that sentiment; that this is why we're trying to make this work happen. It's never with a notion of trying to pit environment against anything; we're really displaying the balance and the possibility of a solution.¹⁵³

Interestingly, the issue of 'balance' is one that can cut both ways. In the western USA, the argument for 'balance' is used to position the EWMs as advocates for a collaborative, consensus-based outcome that suits all users, rather than just the aquatic environment. This concept of balance frames the environment as merely one factor among many.¹⁵⁴ In Australia, however, the need for balance was initially a powerful argument for the establishment of the Murray-Darling Basin Cap and the recovery of additional water, to redress the historical *imbalance* that had emerged as a result of over-allocation of water to irrigators and 'provide a permanent rebalancing between consumptive water use and the environment'.¹⁵⁵ However, as discussed above, the Australian EWMs have come to rely on a narrative that frames their power as dependent on the volume of water entitlements they hold, supplanting balance with the framing of the environment as just another user.

Although each jurisdiction has a clearly identifiable dominant narrative, the tension between the competing narratives about the value of the environment and how it should

¹⁵⁰ Morgan and Yeung, above n 140; Cass R Sunstein, *After the Rights Revolution: Reconceiving the Regulatory State* (Harvard University Press, 1990).

¹⁵¹ Interview CWCB.

¹⁵² Interview DRC.

¹⁵³ Interview WWT.

¹⁵⁴ This construction of the environment is typically linked to the environment as a legal object, and relies on a governing body to undertake the balancing act when creating policy (see Chapter 3).

¹⁵⁵ Commonwealth of Australia, *Water for the Future: Restoring the Balance in the Murray-Darling Basin* (Australian Government Department of the Environment, Water, Heritage and the Arts, 2010), 1.

be protected continues to undermine the dominant narrative.¹⁵⁶ In attempting to shape their personhood to work around this tension, the EWMs of each location have ended up constraining their legal personhood, by considering some of their legal powers as off-limits.

Figure 7 draws on the conceptual framework in Chapter 3 to map the interaction between the regulatory response, the construction of the aquatic environment in law and the different narratives underpinning the operation of the EWMs in the western USA and south-eastern Australia. Importantly, by aligning themselves with a particular narrative, the EWMs are limited in their capacity to resolve the problem of insufficient water for the aquatic environment. In the western USA, the EWMs can't afford to compromise their worthiness and community support by engaging in direct competition with water users. In south-eastern Australia, the EWMs have successfully participated in water markets, but they have struggled to retain community support for the environment as worthy of protection.

	Legal object	Legal subject
EWM narrative	“Collaboration not competition” EWMs work to maintain worthiness	“Just another user” EWMs act as an any other legal person with water rights
Narrative and regulatory response	“Weak but worthy” Aquatic environment worthy of receiving protection by the state	“Strong enough to speak for itself” Aquatic environment receives limited protection by the state

Figure 7 Construction, narrative and regulatory response

The tension between the multiple constructions of the environment can further crystallize in specific legal limitations imposed on the EWMs, particularly in response to the water users’ fear of a legally powerful construction of the environment as a legal subject.

¹⁵⁶ See Chapters 3, 5 and 6.

III. FEAR OF A LEGALLY POWERFUL ORGANISATION REPRESENTING THE AQUATIC ENVIRONMENT

[W]ithin the water industry itself, it's started to change people's thoughts on how the environment will operate and that is a very powerful thing...¹⁵⁷

In law, the EWMs are constructed as legal persons, with specific rights and powers, and capable of protecting their own interests. However, the ongoing role of government in setting the environmental water recovery targets and providing at least some of the funding for the EWMs means that the EWM is still haunted by the other constructions of the aquatic environment in water law. The EWMs simultaneously strengthen the narrative that the aquatic environment can and should look after itself, whilst also relying on the narrative that the aquatic environment should be protected in the public interest.¹⁵⁸

These two competing narratives confront each other most dramatically when there is an attempt to assert the power of the aquatic environment as a legal person. In both case studies, there is real evidence of the existing water users' growing fear that an EWM will be more powerful than any one individual water user, and that the EWM could use this power to reshape the water market and water management systems to meet its own needs. As Strang argued, 'ownership of water is integral to political power, and any loss of such control is disempowering',¹⁵⁹ and the water users fear of losing their existing control is driving legal reform.

A. *Western USA: the Need for Balance and Limits on Trade*

In the western USA, this fear is articulated in the reactions to the concept of instream flow rights held by private non-government EWMs. In the Columbia Basin and Colorado, only the state of Montana currently allows instream flows to be held by private organisations. In all other states, one government agency is specified in law as the 'person' able to hold water rights for the purposes of instream flows.¹⁶⁰ In Colorado, the fear of privately held instream flows rights was explicitly acknowledged:

¹⁵⁷ Interview VEWH 3.

¹⁵⁸ See how the aquatic environment is constructed by water law in Chapters 5 and 6; see also Chapter 3.

¹⁵⁹ Strang, above n 1, 22.

¹⁶⁰ Chapter 6, see Table 10.

There have been attempts to get legislation for private instream flows, and that has always been met with fierce opposition from water users, because they're afraid there wouldn't be that balance.¹⁶¹

In Oregon, the fear that the environment was reshaping water resource management was also identified as a real concern among water users. Even staff in private organisations like the Deschutes River Conservancy felt constrained by the desire for balance:

We were re-allocating water in stream at such a scale that it started to concern some people that the train was leaving the station without some of the other water users; that the environmental water demand was going to be met by the DRC's effort and it may be at the expense of other less organized, less explicitly stated water needs of other sectors of the economy and the community. It was really the success of the DRC that raised some of these issues in the community, and forced the DRC to step back and take a broader view of what our role should be.¹⁶²

Even where a range of private and public organisations are funded to recover water for the environment, such as the Columbia Basin Water Transactions Program, the individual organisations are discouraged from acquiring a portfolio of water that they could use to be economically self-sustaining: '[Bonneville Power Administration's] obligations do not allow them to fund the acquisition of an asset that is used for economic purposes'.¹⁶³

One of the reasons for this limit is that the water recovery is designed to offset the impact of Bonneville Power Administration's hydropower production.¹⁶⁴ However, it is a serious impost on the EWMs of the Columbia Basin, and precludes them from making full use of the water markets. This limit is also a real constraint on the legal personhood of the EWMs funded by Bonneville Power Administration, and demonstrates the vulnerability of even NGO EWMs to the values of the wider community.

In contrast, this ability to trade water recovered for environmental purposes is used to make the best use of available water in Colorado, where there is a fear that instream flows lead to water being lost to downstream states:¹⁶⁵

What we can do, and what the Colorado Water Trust has done, is that we can re-market the instream flow (based on historic consumptive use) to another user downstream, outside of the instream flow reach.¹⁶⁶

¹⁶¹ Interview CWCB.

¹⁶² Interview DRC.

¹⁶³ Interview NFWF.

¹⁶⁴ N J Leonard et al, 'The Challenge of Managing the Columbia River Basin for Energy and Fsh' (2015) 22 *Fisheries Management and Ecology* 88.

¹⁶⁵ Gillilan, David M and Thomas C Brown, *Instream Flow Protection: Seeking a Balance in Western Water Use* (Island Press, 1997), 167.

If we acquire water permanently and change it into instream flow, we will as a policy, look to see if we can re-use water as a consumptive flow after it meets the instream needs. For example, there might be a seven mile stretch that is totally dry and we want the water back in it, but at the bottom of this reach, return flows or another tributary comes in and the river is in great shape below this point. If this happens, we may seek to remarket the historical consumptive use to a downstream user. In our projects generally, we try to wring as many uses out of them as possible: hydropower, instream flow protection, recreation and then consumptive use. We try to do a holistic project, with the most uses wrung out of a single drop of water.¹⁶⁷

B. South-eastern Australia: New Limits on Water Purchase

In southeastern Australia, the fear of a legally powerful aquatic environmental organisation emerged in response to the national water recovery program in the Murray-Darling Basin.¹⁶⁸ The Murray-Darling Basin Plan committed to recovering 2750 GL of water for the environment by 2019, and a further 450 GL by 2024.¹⁶⁹ At the time, no commitment was given to precisely how this water would be recovered, but the Commonwealth government allocated \$AUD3.1 billion to purchasing water rights from existing water users, and \$AUD5.8 billion to increasing water use efficiency, with the savings to be allocated to the aquatic environment.¹⁷⁰ In 2010, the National Farmers Federation argued that: '[t]he market should be the mechanism to adjust between consumptive use and the environment.'¹⁷¹

This argument was backed up by comparisons of the relative cost of water purchase versus investment in water efficiency savings.¹⁷² However, by 2015, the water recovery program had purchased over 1100 GL, there was concern about the volume of water changing hands from irrigators to the aquatic environment.¹⁷³ In response to this concern, the Commonwealth Government legislated to cap the volume of water acquired via purchase to 1500 GL, less than half of the total 3200 GL target.¹⁷⁴ This new limit on the

¹⁶⁶ Interview CWCB.

¹⁶⁷ Interview CWT.

¹⁶⁸ See Chapters 2 and 5.

¹⁶⁹ Murray-Darling Basin Authority, *Murray-Darling Basin Plan* (Commonwealth of Australia, 2012), ss.04, 7.09.

¹⁷⁰ Commonwealth of Australia, *Securing Our Water Future* (Australian Government Department of the Environment, Water, Heritage and the Arts, 2010).

¹⁷¹ National Farmers' Federation, *Submission to the COAG Consultation Draft NWI Policy Guidelines for Water Planning and Management* (National Farmers' Federation, 2010), 10.

¹⁷² See Productivity Commission, above n 118.

¹⁷³ The Hon Greg Hunt MP and The Hon Bob Baldwin MP, *Joint Media Release: Coalition Delivers Election Commitment with 1500GL Water Buyback Cap* (Commonwealth of Australia, 14 September 2015).

¹⁷⁴ *Water Amendment Act 2015* (Cth), Schedule 1.

ability of the environmental water recovery program to acquire water through voluntary transactions was welcomed by the National Irrigators' Council,¹⁷⁵ and championed in the conservative press.¹⁷⁶

Interestingly, this limit on water purchase is difficult to understand from the perspective of neoclassical economics: it raises the cost of water recovery, prevents willing sellers from obtaining the best price for their water and potentially distorts the water market.¹⁷⁷ It is even harder to comprehend given that the environmental water purchases were undertaken separately to the water market itself, so any water user selling to the EWMs had to choose to do so.¹⁷⁸ This limit on water purchase can be best understood as an example of the other water users' fear of a powerful EWM participating in the water market.

A legally powerful construction of the aquatic environment that can compete with other water users is likely to increase their fear of the aquatic environment outcompeting them – raising the cost of water in the market, reducing the availability of water for commercial use, changes to the operation of water delivery and accounting to better suit the environment rather than irrigators. This fear also reflects a largely unacknowledged windfall: today's irrigators depend on the historical health and well-being of aquatic ecosystems.¹⁷⁹ A legally powerful EWM could potentially seek reimbursement for these ecosystem services.

This fear of a legally powerful organisation representing the aquatic environment is strongly linked to the narrative of the environment as powerful enough to protect itself, and legal reforms in response to this fear have directly focused on imposing specific limits on the EWMs' powers. The aquatic environment in the form of the EWM is left in

¹⁷⁵ Tom Chesson, '1500 GL Cap on Water Buybacks Legislated' (National Irrigators' Council, 14 September 2015), available online at <<http://www.irrigators.org.au/assets/uploads/news/sep-2015-2.pdf>>.

¹⁷⁶ Dairy News Australia, '1500 GL Cap Delivers Certainty to Farmers' (15 September 2015) <<http://www.dairynewsaustralia.com.au/general-news/1500-gl-cap-delivers-certainty-to-farmers.html>>; Sid Maher, 'Senate Passes 1500GL Cap on Murray Darling Water Buybacks' (15 September 2015) *The Australian* <<http://www.theaustralian.com.au/national-affairs/climate/senate-passes-1500gl-cap-on-murraydarling-water-buybacks/news-story/f59442bd44b3f98e33ba4b27542dc779>>.

¹⁷⁷ See, for example, Productivity Commission, above n 118.

¹⁷⁸ See Chapter 5, 135.

¹⁷⁹ For example, water quality for irrigators in the Murray-Darling Basin depends on management of salinity and blue-green algal blooms; managing these water quality threats directly depends on having sufficient environmental water.

the difficult position of being constructed as a legal person, but with additional legal limits than those imposed on other water users, and limited capacity to act to fully protect its interests. What is also clear from these examples is that the actions taken by the other water users to limit the powers of the EWMs require those water users to reject the narrative of the environment as deserving of protection (most strongly evidenced in south-eastern Australia). This growing awareness that the aquatic environment is represented by an organisation capable of protecting itself is actively undermining the narrative that the environment is worth protecting.

The interaction between the multiple constructions of the aquatic environment results in each individual construct being '*neither fish nor flesh*'.¹⁸⁰ As a legal entity, the EWMs do not have access to the full powers of a legal person, and yet are also unable to access the full suite of legal protections previously accorded to the environment.

IV. CONCLUSION: THE PARADOX OF THE EWMs

This chapter has answered the final sub-question: how do the constructions of the aquatic environment interact? And in doing so, it brings all the evidence and analysis together to answer the key question: what happens when the aquatic environment is constructed as a legal subject?

What emerges from this analysis is a paradox: the new legal powers of the EWMs may be undermining the cultural narratives that support environmental protection among water users, and the broader community. This is an unexpected and unforeseen outcome of the creation and operation of the EWMs, which are intended to improve the health and function of the aquatic environment, by recovering additional water, and managing this water efficiently and effectively. If their activities also erode support for protecting and improving the quality of the aquatic environment, this is a significant problem.

The EWMs are a step change in the way that the aquatic environment is represented in, and made legible to, law. By constructing the aquatic environment as a legal subject (a legal person), and recovering substantial water rights for it, the EWMs give the aquatic

¹⁸⁰ John Heywood, *A dialogue conteinyng the nomber in effect of all the prouerbes in the englishe tongue compacte in a matter concernyng two maner of mariages* (Imprinted at London in Fletestrete by Thomas Berthelet prynter to the kynges hyghnesse, 1546), published by Early English Books Online, *Text Creation Partnership* <<http://quod.lib.umich.edu/e/eebo/A03168.0001.001?view=toc>>.

environment the formal capacity to bear legal relations, including rights and duties, and to speak on its own behalf. The EWMs have achieved real improvements in environmental flows, by increasing the volume of water available to the aquatic environment,¹⁸¹ and improving the efficacy and efficiency of the way that water is managed. The EWMs of both case studies make use of this legal personhood to position the environment itself as a participant in water markets, and a user of water in its own right.¹⁸² Even in the western USA, where the public interest, EWM-as-collaborator narrative is strongest, the EWMs use their legal personality to enable them to negotiate water transactions on an individual basis and will, where absolutely necessary, use their legal powers to protect their water rights.

However, both case studies also show a clear reluctance of the EWMs to make use of the full suite of legal powers attendant on legal persons (and with which they would otherwise be empowered). In both jurisdictions, the EWMs have attempted to present themselves as less threatening to other users of water. In Australia, this manifests as a portrayal of the EWMs as just another user of water, and bound by the same rules and regulations as all other water users. But of course they are different: the EWMs have different needs for water, at different times and in different places to that required by irrigators. The EWMs are attempting to ‘grow’ environmental outcomes in the same way that irrigators grow crops, but the metrics of assessing agricultural productivity and environmental protection are vastly different. So the EWMs of south-eastern Australia are continually confronted by the differences between the way they present themselves, and what they actually need from water resource managers, and how they account for their use of water to the public. By framing themselves as just another user of water, the EWMs undercut the ‘special’ nature of the environment. By describing themselves as an irrigator, the CEWH, in particular, has constructed the environment as nothing more than an output of the application of water, and not inherently worthy of special treatment.

In the Columbia Basin and Colorado, the EWMs are presented as balanced, community-oriented collaborators who work with agricultural users of water to improve instream

¹⁸¹ Scarborough, above n 111; Brandon Scarborough and Hertha L Lund, *Saving Our Streams: Harnessing Water Markets: A Practical Guide* (Property and Environment Research Centre, 2007); Murray-Darling Basin Authority, *Towards a Healthy, Working Murray-Darling Basin: Basin Plan Annual Report 2014-15* (Murray-Darling Basin Authority, 2015).

¹⁸² See Chapters 5 and 6.

flows while at the same time maintaining agricultural production. This strategy has been very effective in creating the necessary legal mechanisms to enable EWMs to operate, and in undermining opposition to environmental water recovery. However, the very success of this approach sharpens the opposition to circumstances in which the EWM would be required to act more selfishly, and compete with other water users. The EWMs face real difficulty when they attempt to use legal mechanisms to protect their instream water rights, and are extremely reluctant to use adversarial litigation at all. In addition, the requirement to find water transactions mutually acceptable to the EWM, the irrigators and the community increases transaction costs and reduces the reallocation of water to the environment. The current operation of the EWMs as collaborators encourages water users to believe that the environment can (and should) only receive protection where this does not require substantial changes to human activity. The activities of the EWMs have strengthened the idea that all solutions to the problem of environmental degradation will be negotiated, collaborative, consensus-based outcomes, which obscures the need to sometimes make tough choices. When the needs of the aquatic environment directly compete with those of human users, the EWMs are unlikely to be able to act to resolve this competition in their current form.

In both cases, the fear of a legally powerful organisation representing the aquatic environment acts to limit the ability of the EWMs to use all of their legal powers. This fear also undermines the narrative of the aquatic environment as being worthy of protection, by directly weakening the connection between worthiness and the inability of the aquatic environment to protect itself.¹⁸³

The construction of the EWMs as legal persons simultaneously empowers the aquatic environment in law (via the EWM organisations), whilst also weakening the cultural values and social norms that consider the environment as worthy of protection in the first place. This paradox has emerged through the detailed examination of the EWMs and their role in water law, but the use of the conceptual framework developed in Chapter 3 indicates that the paradox may not be limited to the EWMs. The next, and final, chapter considers the implications of this paradox for the way the environment is constructed in law more broadly, particularly at the intersection of the 'legal rights for nature' and market environmentalism movements.

¹⁸³ Of course, this backlash is not entirely the fault of the EWMs. The environmental protection narrative waxes and wanes over time, and is often influenced by living standards and incomes.

Chapter 8

Conclusion

I. INTRODUCTION

[I]f you treat the environment like you would irrigation, it might come off second best.¹

[I]f [the] environment was going to participate with licences, then it had to be on same basis as irrigators.²

This thesis set out to answer the question raised by the creation and operation of the EWMs: what happens when the aquatic environment is constructed as a legal subject? The answer to this question is an unexpected and significant paradox: constructing the environment as a legal subject (although necessary to support significant improvement in environmental outcomes in the context of water rights and water markets) can undermine the cultural narrative that considers the environment worthy of protection at all.³

I have approached this question from two perspectives. Firstly, I have used the example of the environmental water managers (EWMs) to support a detailed examination of what happens when a particular subset of the aquatic environment is represented by an identifiable organisation with legal personality.⁴ The EWMs are a rare example of the construction of the environment as a legal subject, and by focusing on them, the investigation has been grounded in detailed legal analysis. In addition, using the EWMs as an example created an opportunity to go behind the scenes, by interviewing key staff of the EWM organisations. These interviews provided depth and insight into the way that the EWMs operate, and added nuance to the publicly available material.⁵

Secondly, I have developed a conceptual framework to understand how the environment is constructed in law.⁶ This framework is an original contribution to the scholarship of environmental law, and articulates the relationship between the environment, its

¹ Interview DEWNR.

² Interview OEH.

³ Chapter 7, 220.

⁴ Chapter 2, 41.

⁵ Chapters 5, 6 and 7.

⁶ Chapter 3, 87.

multiple constructions in law, the processes that create them and the role of the cultural narratives that underpin them. The framework shows how the quest to enhance legibility of the environment *to* law has shaped multiple constructions of the environment *in* law. In particular, this framework identifies the contested space in which competing narratives underpinning the multiple constructions of the environment can interact. Finally, the framework also creates a dialogue between two very different ideologies on the role of the environment in law: the legal rights for nature movement, and the market environmentalists.⁷ The power of this framework is demonstrated in its application to the EWMs.⁸

In addition, the EWMs operate within (and are often created by) water law, which has three features that make it an especially useful example.⁹ Firstly, water law frameworks that create transferable rights to water held separately to land are frequently explicitly created in statute,¹⁰ reflecting the application of legal rights to a fluid and often fugitive resource.¹¹ Secondly, these explicit legal frameworks are typically rather isolated from the developments of environmental law more broadly,¹² which has two consequences: the legal requirements to protect the environment are usually explicitly stated, making them easy to identify; and the broader context of environmental law may have been overlooked in the attempt to create legal mechanisms. Thirdly, water laws in water-scarce regions create legal rights to use water, and water resource managers have rapidly

⁷ Chapter 3, see particularly the discussion of shared resource markets at 78.

⁸ It is acknowledged that broader testing of the framework in other contexts will be necessary to determine the breadth of its applicability.

⁹ Chapters 2, 5 and 6.

¹⁰ Stephen Hodgson, *Modern Water Rights: Theory and Practice* (Food and Agriculture Organisation of the United Nations, 2006).

¹¹ D E Fisher, 'Markets, Water Rights and Sustainable Development' (2006) 23 *Environmental and Planning Law Journal* 100; D E Fisher, 'Rights of Property in Water: Confusion or Clarity' (2004) 21 *Environmental and Planning Law Journal* 200; Anthony Scott and Georgina Coustalin, 'Rights Over Flowing Water' in Anthony Scott (ed), *The Evolution of Resource Property Rights* (Oxford University Press, 2008) 63.

¹² Environmental law has the capacity to influence water resource management, but water rights usually pre-date specific environmental statutes, so their ongoing use is often outside the regulatory powers of those statutes; see for example Michael Bennett and Alex Gardner, 'How do Environmental Conservation Laws Interact With Environmental Aspects of Water Laws?' (2014) 31(3) *Environmental and Planning Law Journal* 3. It is worth noting that the *Endangered Species Act* has a much bigger influence on water management in the USA, see M Bowman, 'Legal Perspectives on Dam Removal' (2002) 52(8) *BioScience* 739; D Garrick et al, 'Water Markets and Freshwater Ecosystem Services: Policy Reform and Implementation in the Columbia and Murray-Darling Basins' (2009) 69 *Ecological Economics* 366.

adopted water markets as a mechanism for managing water use efficiently,¹³ making water law a good example of a shared resource market in which the environment can participate.¹⁴

Combining these approaches in this thesis has enabled the longer-term implications of the EWMs in south-eastern Australia and the western USA, and their capacity to construct the aquatic environment as a legal subject, to be identified and understood. Although the concept of a backlash to effective environmental laws is well established,¹⁵ the paradox identified in Chapter 7 highlights two particular issues of concern: firstly, that constructing the environment as a legal subject, and a competitor in a shared resource market can undermine cultural narratives of the environment as worthy of protection; and secondly, that other constructions of the environment can be affected by this narrative shift. Application of the conceptual framework shows that this paradox may be indicative of a potential problem for other constructions of the environment, and that further research is justified.

A. *Thesis Questions and Key Findings*

This thesis has examined the creation and operation of the EWMs of south-eastern Australia and western USA to answer this question: what happens when the aquatic environment is constructed as a legal subject? To do so, this thesis has answered the following sub-questions:¹⁶

- 1) How do the EWMs construct the aquatic environment as a legal subject?
- 2) How is the environment constructed in law? What are the cultural narratives underpinning these constructions?
- 3) How is the aquatic environment constructed in water law?
- 4) How do the multiple constructions of the aquatic environment in water law interact? What are the effects of these interactions, particularly for the construction of the aquatic environment as a legal person?

¹³ R Quentin Grafton et al, 'An Integrated Assessment of Water Markets: A Cross-Country Comparison' (2011) 5(2) *Review of Environmental Economics and Policy* 219.

¹⁴ See discussion in Chapter 3, 76.

¹⁵ For a recent example, see Jeff Smith, 'Green tape' Cuts: Industry Wins, Locals and the Environment Lose', *The Conversation* (<https://theconversation.com/green-tape-cuts-industry-wins-locals-and-the-environment-lose-26443>), 13 May 2014.

¹⁶ Chapter 1, 7.

The answers and the key findings are briefly discussed below.

Chapter 2 shows how the EWMs construct the aquatic environment as a legal subject. This chapter identified and described the EWMs as organisations that aim to improve the health of the aquatic environment by increasing water availability. The EWMs have the attributes of legal personality, including the particular powers to hold and deal with water rights, to enter and enforce contracts, and to sue and be sued (legal standing). As a result, the EWMs can be considered as a way of representing the aquatic environment, and as a construction of the aquatic environment as a legal subject. The EWMs are found in 19 jurisdictions around the world, of which 16 are located in south-eastern Australia and the western USA.¹⁷

In Chapter 3, the EWMs were located in the broader context of environmental law. This chapter used examples from Australia and the USA, as well as other global trends,¹⁸ to show how the environment is constructed in law. Multiple constructions of the environment in law have emerged in response to a need to increase the legibility of the environment to law, so that the power of the law can be harnessed to solve environmental problems. A lightly constructivist approach¹⁹ was used to develop a conceptual framework to identify and describe the multiple constructions of the environment in law, which are:

- 1) *Recognition* and articulation of the environment as a *socio-ecological concept*;
- 2) *Translation* of that concept into a *legal object*; and
- 3) *Personification* of that object into a *legal subject*.²⁰

These three constructions of the environment in law are also underpinned by cultural narratives that underpin the three constructions of the environment in law, and also shape the legal and regulatory response to environmental problems.²¹

Chapter 3 also showed that legal personhood for the environment has emerged at the intersection of two separate drivers of legal reform: creation of legal rights for the

¹⁷ Chapter 2, Table 4.

¹⁸ Recent reforms in New Zealand, Bolivia and Ecuador are examples of the legal rights for nature movement, see Chapter 3.

¹⁹ See discussion in Chapter 1, 15; a constructivist approach focuses on legal rights and powers rather than the specific definitions.

²⁰ Chapter 3, 87.

²¹ Chapter 3, 82.

environment as part of the legal rights of nature movement;²² and market environmentalism,²³ which enables (and in some cases, requires) the environment to participate in markets in order to manage environmental resources.²⁴ This finding positions the work of this thesis at the intersection of these two very different but increasingly influential paradigms.

Chapters 5 and 6 showed how the aquatic environment is constructed in water law. These chapters explored the example of the EWMs in detail using case studies of the two geographic regions with the majority of the EWMs: south-eastern Australia and the western USA.²⁵ In each case study, the aquatic environment has been constructed in water law in the three ways identified in the conceptual framework.²⁶ The EWMs of each region use a variety of legal forms to acquire the attributes of legal personhood, drawing on a range of state and federal legislation.²⁷ Chapter 5 showed that the EWMs of south-eastern Australia have focused on water recovery (using a combination of purchase and investment in efficiency savings) and efficient management of that water in highly interconnected river systems.²⁸ Chapter 6 showed that the construction of the aquatic environment is more complex in the western USA (as a result of the prior appropriation water law frameworks), and that the EWMs of the western USA focus on water recovery as temporary or permanent instream flows. Unlike Australia, these EWMs emphasise keeping the original water user in business by acquiring the water using efficiency

²² Christopher D Stone, 'Should Trees Have Standing? Towards Legal Rights for Natural Objects' (1972) 45 *Southern California Law Review* 450; Peter Burdon, 'The Rights of Nature: Reconsidered' (2010) 49 *Australian Humanities Review* 69; Cormac Cullinan, 'A History of Wild Law' in Peter Burdon (ed), *Wild Law: The Philosophy of Earth Jurisprudence* (Wakefield Press, 2010) 24; Christopher D Stone, 'Response to Commentators' (2012) 3(Special Issue) *Journal of Human Rights and the Environment* 100; Christopher D Stone, *Should Trees Have Standing? Law, Morality and the Environment* (Oxford University Press, 3rd ed, 2010).

²³ Terry L Anderson and Gary D Libecap, *Environmental Markets: A Property Rights Approach* (Cambridge University Press, 2014); David Driesen, 'Economic Instruments for Sustainable Development' in Benjamin J Richardson and Stepan Wood (eds), *Environmental Law for Sustainability* (Hart Publishing, 2006) 277.

²⁴ Chapter 3, 76.

²⁵ For detail on how the case studies were conducted, and the critical importance of using qualitative empirical research methods, see Chapter 4.

²⁶ Chapter 5 and 6.

²⁷ Chapters 5 and 6.

²⁸ Chapter 5.

savings rather than purchase.²⁹ In both cases, there is evidence of an interactive relationship between the EWMs and their legal context.³⁰

Chapter 7 brought the findings of the two case studies together to show how the multiple constructions of the aquatic environment in water law interact. This interaction results in limits on the legal personhood powers of the EWM in law, and in the choices made by the EWM staff. These limits are in response to (and also reinforce) a dominant narrative underpinning both the creation and operation of the EWMs in each case study region.³¹ In south-eastern Australia, the EWMs have been eager to frame themselves as ‘just another user’ of water. This framing has given them access to additional water resource management tools, but has also reinforced the narrative that the aquatic environment is a competitor, which can, and should, look after itself. In the western USA, the EWMs have instead framed themselves as collaborators. This has increased community support for improving environmental flows, but has left the EWMs extremely reluctant to compete for access to water, thus limiting their environmental outcomes. The EWMs in the western USA are more closely aligned with the narrative that the environment is worthy of protection, but legally weak. Chapter 7 uncovered an unexpected problem: the EWMs have achieved significant success in terms of increasing environmental flows, but in doing so, their activities and legal powers have alarmed other water users. This fear has resulted in legal reform to weaken the legal powers of the EWMs, whilst at the same time, the construction of the EWM as a legal person has weakened the narrative that the environment deserves protection at all.³²

This thesis has shown that the outcome of constructing the aquatic environment as a legal subject is the *paradox of the EWMs*. Constructing the aquatic environment as a legal person increases its legibility to law, and power in law, but can undermine the cultural narrative that the environment is worthy of protection.

The following sections provide a more detailed overview of the EWMs and the implications of constructing the aquatic environment as a legal subject.

²⁹ Chapter 6.

³⁰ Chapters 5 and 6.

³¹ Chapter 7, 201, 206.

³² Chapter 7, 220.

II. ENVIRONMENTAL WATER MANAGERS: A COMPELLING EXAMPLE

But why are we there? To manage a set of concerns of the greater community about water dependent ecosystems. Our job is to look after those things, and we hear about it if we can't.³³

Existing scholarship demonstrates that the EWMs have been relatively successful in achieving their objectives: they have recovered significant volumes of water for the environment, and they are using water markets to both acquire and manage this water.³⁴ This thesis makes an original contribution to this literature by exploring the implications of constructing aquatic environment as a legal subject, and what happens when the representative of the environment (the EWM) is 'in a whole new field [as] an active participant in a water market.'³⁵

The EWMs are environmental organisations with the attributes of legal personality, and they exist within a legal context defined by modern water rights, water markets and the extension of modern water rights to include environmental uses.³⁶ For each of the EWMs, their 'superstructure' (the legal form, their objectives, powers and capacities, and the mechanisms they use to achieve their goals) has been clearly articulated.³⁷ However, as Godden pointed out in 1998, environmental law typically treats 'the focus of that

³³ Interview OEH.

³⁴ See Chapters 5 and 6; for reporting on the outcomes of the EWMs in specific locations, see Murray-Darling Basin Authority, *Towards a Healthy, Working Murray-Darling Basin: Basin Plan Annual Report 2014-15* (Murray-Darling Basin Authority, 2015); Victorian Environmental Water Holder, *Reflections: Environmental Watering in Victoria 2014-15* (State Government of Victoria, 2015); Columbia Basin Water Transactions Program, *Annual Report 2012: A Decade of Outcomes 2003-2012* (National Fish and Wildlife Foundation, 2012); Brandon Scarborough, *Environmental Water Markets: Restoring Streams Through Trade* (Property and Environment Research Centre, 2010); Edna T Loehman and Sasha Charney, 'Further Down the Road to Sustainable Environmental Flows: Funding, Management Activities and Governance for Six Western US states' (2011) 36(7) *Water International* 873.

³⁵ Interview OEH.

³⁶ See Chapter 2, 41; see also Erin O'Donnell, 'Common Legal and Policy Factors in the Emergence of Environmental Water Managers' in C A Brebbia (ed), *Water and Society II* (WIT Press, 2013) 321.

³⁷ See Chapters 5 and 6; see also Erin O'Donnell, 'Australia's Environmental Water Holders: Who is Managing Our Environmental Water?' (2013) 28(3) *Australian Environment Review* 508; Erin O'Donnell, 'Institutional Reform in Environmental Water Management: the New Victorian Environmental Water Holder' (2012) 22 *Journal of Water Law* 73; Dustin Garrick and Erin O'Donnell, 'Exploring Private Roles in Environmental Watering in Australia and the US' in Jeff Bennett (ed), *Protecting the Environment, Privately* (World Scientific Publishing, 2016) 203; Dustin Garrick, Chelsea Lane-Miller and Amy L McCoy, 'Institutional Innovations to Govern Environmental Water in the Western United States: Lessons for Australia's Murray-Darling Basin' (2011) 30(2) *Economic Papers* 167; Garrick et al, above n 12.

regulation as something of an unproblematic “given”,³⁸ and this continues to be true of the EWMs. Although they have a clear set of organisational attributes, EWMs do not consistently or clearly articulate the nature of the environment that they serve to manage and protect.³⁹ This lack of clarity means that the EWMs, whilst they construct part of the aquatic environment in water law as a legal subject, are vulnerable to shifting cultural narratives about the value of the environment.⁴⁰

Viewing water law, and the EWMs, through the lens of the conceptual framework⁴¹ enables the multiple constructions of the aquatic environment to be identified in each location.⁴² In water law, each construction of the aquatic environment in law has emerged in response to a specific need to endow the environment with a particular set of legal characteristics.⁴³ The EWMs operate alongside other, older constructions of the aquatic environment in water law, and they can affect each other in unexpected or unintended ways, through the interaction of their underpinning cultural narratives.⁴⁴

A. *A Voice for the River? Competing Cultural Narratives*

Although all the EWMs were created to improve environmental outcomes by increasing the volume of water in rivers and wetlands at the appropriate times (and are clearly ‘environmental’ organisations),⁴⁵ in their operations, the EWM organisations exhibit considerable ambiguity on the issue of whether they represent, speak, or advocate for the aquatic environment.⁴⁶ The interviews with EWM staff show the variety of opinions on this issue, including the strong belief that the EWMs are and should be a voice for the environment:

³⁸ Lee Godden, 'Preserving Natural Heritage: Nature as Other' (1998) 22(3) *Melbourne University Law Review* 719, 722.

³⁹ See Tables 9 and 14.

⁴⁰ For a definition of cultural narratives, see Robin Kundis Craig, 'Learning to Live with the Trickster: Narrating Climate Change and the Value of Resilience Thinking' (2016) 33(Spring) *Pace Environmental Law Review* 351, 352.

⁴¹ Chapter 3; see also this chapter, 233.

⁴² Chapters 5 and 6.

⁴³ Chapters 5 and 6.

⁴⁴ Chapters 5-7.

⁴⁵ See discussion of the objectives of the EWMs in Chapters 5 and 6.

⁴⁶ Chapters 5 and 6.

Yeah, absolutely. That's essentially what an environmental advocacy organisation is there to do, to give a voice to the rivers and streams.⁴⁷

I think it represents the environment quite strongly... we participate on the customer service committees for state water in every catchment, we go to those forums to put forward the view of the environment's needs in terms of the system operations; we provide input... in terms of what will lead to the best environmental outcome.⁴⁸

I don't know about a 'voice', but we certainly represent its interests, its well-being...⁴⁹

However, staff from other EWMs are equally strongly opposed to the concept of being an advocate for the environment:

I have never considered us as the voice of rivers.⁵⁰

I don't think the DRC tries to set itself up as the voice of the environment.⁵¹

This ambiguity highlights the challenge for the EWMs: to deliver environmental outcomes whilst maintaining community support for the ongoing operation of the EWM. Awareness of the difficulty of achieving both goals was most apparent in the interviews with the EWMs of the western USA:

Our voice is for the river, but we are sensitive to not alienating the agricultural community.⁵²

[W]e're not there purely to advocate on behalf of the environment at all costs, or for landowners. Our goal is to walk the tightrope and advocate for the most benefit for both, without too much sacrifice from either.⁵³

The EWMs thus exemplify the tension between the narratives that underpin the constructions of the environment in law. On the one hand, the EWMs are created as distinct legal organisations, endowed with the required legal powers to participate in the water market (and sometimes the courts) and manage water rights for the environment. On the other, the EWMs must operate to achieve an environmental outcome, which requires maintaining community support for their ongoing activities.⁵⁴ In many cases, the most important relationship the EWMs have is with other water users, who can be collaborators or competitors, and are frequently both.

⁴⁷ Interview NFWF.

⁴⁸ Interview CEWO 1.

⁴⁹ Interview OEH.

⁵⁰ Interview CWT.

⁵¹ Interview DRC.

⁵² Interview CFC.

⁵³ Interview FWT.

⁵⁴ Non-government EWMs depend on ongoing community and philanthropic support; government EWMs depend on ongoing political support; see Chapter 7.

The analysis of the EWMs can be understood by placing it in context of the conceptual framework developed in Chapter 3. In doing so, the example of the EWMs has helped to refine this conceptual framework, so that it more clearly articulates the multiple constructions of the environment, their relationship to the quest for legibility to law, and the power of the cultural narratives which underpin them.

III. A NEW WAY OF UNDERSTANDING THE ENVIRONMENT IN LAW

Using the law to solve environmental problems requires the law to 'see' and comprehend the environment.⁵⁵ As Chapter 3 demonstrated, this is not straightforward, and the history of modern environmental law⁵⁶ can be viewed as a quest to make the environment *legible* to law, by altering the way in which law *constructs* the environment. By applying a *lightly constructivist* approach,⁵⁷ supported by the intensive legal analysis, and empirical exploration of the example of the EWMs,⁵⁸ this thesis provides a new way of understanding how the environment is constructed in law.

This thesis has developed a conceptual framework which identifies the multiple ways in which the environment is constructed *in* law, and which enhance legibility *to* law. This conceptual framework also makes the connection between these constructions and the underpinning cultural narratives about the nature and value of the environment in human society.⁵⁹ In doing so, this conceptual framework exposes the relationship between the construction of the environment in law, the cultural narratives, and the regulatory response to environmental problems.⁶⁰

⁵⁵ This is the concept of 'legibility', see Chapters 1-3.

⁵⁶ Justice Brian Preston, 'Environmental Law 1927-2007: Retrospect and Prospect' (2007) 81 *Australian Law Journal* 616; Lee Godden and Jacqueline Peel, *Environmental Law: Scientific, Policy and Regulatory Dimensions* (Oxford University Press, 2010); D E Fisher, *Australian Environmental Law: Norms, Principles and Rules* (Thomson Reuters, 2nd ed, 2010); Dan Tarlock, 'Is a Substantive, Non-Positivist United States Environmental Law Even Possible?' 1(1) *Michigan Journal of Environmental and Administrative Law* 159; Zygmunt J B Plater, 'From the Beginning, a Fundamental Shift of Paradigms: a Theory and Short History of Environmental Law' (1994) 27 *Loyola of Los Angeles Law Review* 981.

⁵⁷ See Chapter 1, 15.

⁵⁸ See detailed overview of methods in Chapter 4.

⁵⁹ Chapter 3, 82.

⁶⁰ Chapter 3, 87.

A. Constructing the Environment in Law

... legal stories mediate our engagement in the world and with others; they provide the possibilities and parameters of our own self-definition and understanding...⁶¹

The construction of the environment in law can be considered chronologically.⁶² The first step was the *recognition*, and articulation, of the environment in law as a *socio-ecological concept*, which was more than the mere physical background to other legally legible activities.⁶³ Once the law was capable of 'seeing' the environment, the second step was the *translation* of the broad socio-ecological concept into a legal object, and protecting it by placing limits on the actions of others.⁶⁴ Even though the translation of the environment into a legal object enabled significant environmental protection (such as limits on pollution emission, or protection of native vegetation from being cleared), this construct was at best only obliquely visible to the law, via the actions of legal subjects. As Christopher Stone argued in 1972:

What does not weigh in the balance is the damage to the stream, its fish and turtles and "lower" life. So long as the natural environment itself is rightless, these are not matters for judicial cognizance... The stream itself is lost sight of.⁶⁵

In response, the legal rights for nature movement crystallized around the next step: empowerment of the environment by constructing it as a legal subject, with rights, powers and duties of its own.⁶⁶ However, it was several decades before this movement began to achieve legal reform.⁶⁷

⁶¹ Allan C Hutchinson, *Dwelling on the Threshold: Critical Essays on Modern Legal Thought* (Carswell, 1988), 14.

⁶² There are overlaps between the emergence of new constructions of the environment in law, but a chronological pattern is apparent, see Chapter 3, 87.

⁶³ Chapter 3; see particularly Richard J Lazarus, 'Restoring What's Environmental About Environmental Law in the Supreme Court' (2000) 47 *UCLA Law Review* 703; David Grinlinton, 'The "Environmental Era" and the Emergence of "Environmental Law" in Australia - A Survey of Environmental Legislation and Litigation 1967-1987' (1990) 7 *Environmental and Planning Law Journal* 74; Neil Gunningham, 'Environmental Law, Regulation and Governance: Shifting Architectures' (2009) 21(2) *Journal of Environmental Law* 179.

⁶⁴ Chapter 3, 61.

⁶⁵ Stone, 'Should Trees Have Standing? Towards Legal Rights for Natural Objects', above n 22, 461.

⁶⁶ Ibid; the modern legal rights for nature movement can be dated from Stone's 1972 paper, and has found resonance in multiple jurisdictions around the world, including Bolivia, Ecuador, New Zealand and the USA; see Chapter 3, 69.

⁶⁷ Stone, 'Should Trees Have Standing? Towards Legal Rights for Natural Objects', above n 22; Michelle Maloney and Peter Burdon (eds), *Wild Law - In Practice* (Routledge, 2014).

At the same time, market environmentalism was being used to manage environmental problems.⁶⁸ Competition policy and market reforms of the 1980s in both Australia and the USA increased the use of market mechanisms by governments to improve efficiency of resource use and service delivery.⁶⁹ Most early environmental markets were either regulatory markets (which capped total pollution emissions and issued transferable pollution permits that could be traded between polluters) or ecosystem service markets (which used market mechanisms to set a price on ecosystem services and paid private individuals to provide them).⁷⁰ In each case, environmental organisations could be buyers or sellers, but not both. The emergence of water markets in the late 1980s and 1990s created the 'shared resource' of water rights, with value to consumptive users and the environment,⁷¹ and enabled environmental organisations to buy and sell water, and participate in the market.⁷²

In response to the twin challenges of needing to be able to 'see' environmental harm explicitly (rather than through the lens of harm to humans), and needing to establish an entity capable of holding property rights and participating in environmental markets, the environment was *personified* in law as a *legal subject*. By constructing the environment as a legal person, the environment (or parts thereof) is both directly visible to the law, as well as able to hold and manage property rights. This third construct of the environment is significantly more powerful in law. Naffine argues that '[t]hrough its concept of the person, law helps to define who matters... legal personification [is a barometer] of social and moral thought and the means of practically enforcing those ideas: of giving them the force of law'.⁷³

These three legal constructs of the environment are all present in modern environmental law.⁷⁴ Figure 8 presents a refined form of the conceptual framework developed in

⁶⁸ Anderson and Libecap, above n 23; Terry L Anderson, 'The Market Process and Environmental Amenities' in J. Bennett and W. Block (eds), *Reconciling Economics and the Environment* (Australian Institute for Public Policy, 1991) 133.

⁶⁹ Anderson and Libecap, above n 23; Driesen, above n 23.

⁷⁰ Barton H Thompson Jr, 'Markets for Nature' (2000) 25 *William and Mary Environmental Law and Policy Review* 261.

⁷¹ See discussion in Chapter 3, 79.

⁷² Steven Malloch, *Liquid Assets: Protecting and Restoring the West's Rivers and Wetlands through Environmental Water Transactions* (Trout Unlimited, 2005).

⁷³ Ngaire Naffine, *Law's Meaning of Life: Philosophy, Religion, Darwin and the Legal Person* (Hart Publishing, 2009), 11.

⁷⁴ Chapter 3.

Chapter 3. By using this framework, the EWMs have been placed in the broader context of environmental law.⁷⁵

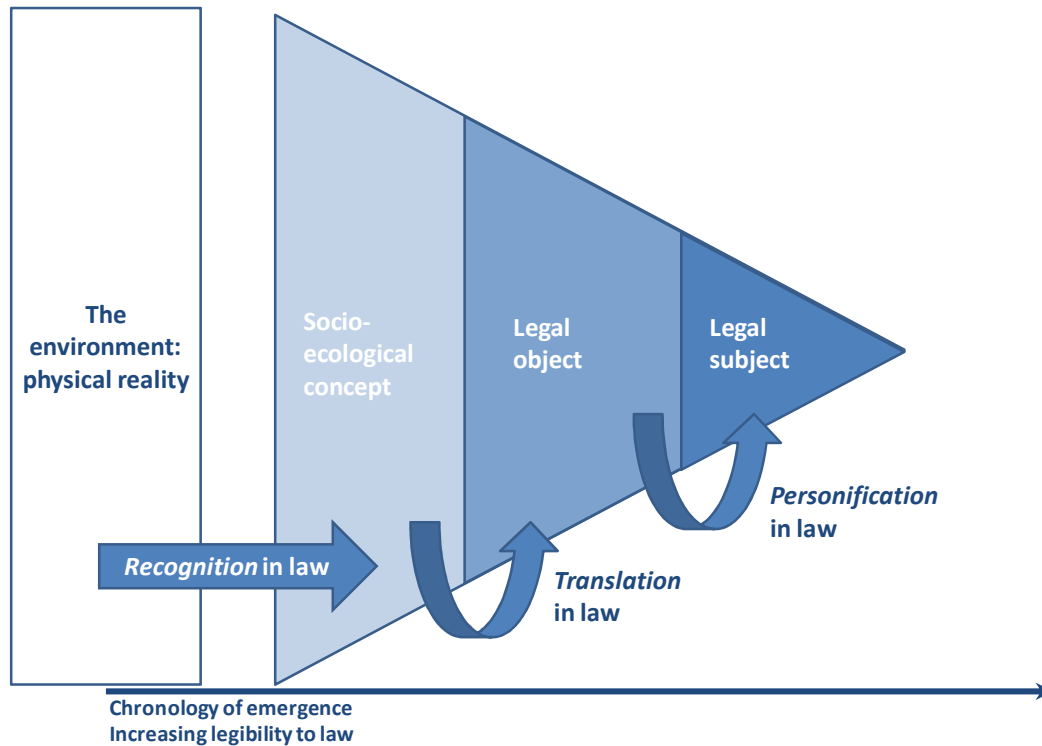


Figure 8 Constructing the environment: processes, constructions and legibility

The constructions of the environment in law are underpinned by cultural narratives about the value of the environment. '[S]tories matter to environmental law',⁷⁶ and these narratives have the power to shape the regulatory response to environmental problems by aligning particular constructions more closely with public or private interest theories of regulation.⁷⁷ Table 15 presents a summary of the construction, the process and the underpinning narrative.⁷⁸

⁷⁵ Chapters 5-7.

⁷⁶ Michael Burger, 'Environmental Law/Environmental Literature' (2013) 40 *Ecology Law Quarterly* 1, 56-57.

⁷⁷ Bronwen Morgan and Karen Yeung, *An Introduction to Law and Regulation: Text and Materials* (Cambridge University Press, 1st ed, 2007).

⁷⁸ See discussion of narratives and their ability to shape regulation in Chapter 3, 82; see also Melinda Harm Benson, 'Reconceptualizing Environmental Challenge - Is Resilience the New Narrative?' (2015) 21 *Journal of Environmental and Sustainability Law* 99.

Table 15 Constructions of the environment in law: processes and narratives

Construct of the environment in law	Process of construction	Underpinning cultural narrative
Environment as a socio-ecological concept	Recognition	The environment is a concept that is more than the sum of its parts, but simultaneously a contingent, nuanced concept reflecting a dynamic relationship between the physical reality (ecosystems) and social value. ⁷⁹
Environment as a legal object	Translation	The environment is legally weak, but worthy of protection. This narrative supports public interest theories of regulation: that regulators act to protect vulnerable areas in the interests of broader social good. ⁸⁰
Environment as legal subject	Personification	The environment has the same legal powers as any other person, so it can, and should, look after itself. This narrative relies on the private interest origins of regulation: that regulation emerges as a result of competing individual interests. ⁸¹

This thesis has demonstrated that each of the three constructs of the environment exists simultaneously, and the example of the EWMs shows that the construction of the aquatic environment as a legal person both affects, and can be affected by, other constructions. The conceptual framework, by making the link between the construction and the cultural narratives, shows that the mechanism of this influence is via the interaction of the underpinning narratives.

1. *The Power of the Conceptual Framework*

The environment, as a legal subject, is not simply a physical space; it is a contingent and instrumental concept, determined by human activity, social values and legal and non-legal calculation.⁸²

This conceptual framework has three important implications for environmental law. Firstly, what is meant by ‘environment’ must be constantly and explicitly articulated in the law, and it is often highly variable between different legal contexts. The socio-ecological concept within the law is broad, flexible and easily adaptable to meet the needs of specific legislation,⁸³ but the corollary of this flexibility is uncertainty: ‘environmental law is not susceptible to simple definition or pigeonholing... largely

⁷⁹ Jean-Guy Vaillancourt, 'Environment' in Robert Paehlke (ed), *Conservation and Environmentalism: an Encyclopaedia* (Garland Publishing, 1995) 217-218; Fisher, *Australian Environmental Law*, above n 56, 4-5.

⁸⁰ Morgan and Yeung, above n 77; Cass R Sunstein, *After the Rights Revolution: Reconceiving the Regulatory State* (Harvard University Press, 1990).

⁸¹ Morgan and Yeung, above n 77; Gary S Becker, *The Economic Approach to Human Behaviour* (University of Chicago Press, 1976).

⁸² Jo-Ann Goodie, *The Invention of the Environment as a Legal Subject* (PhD Thesis, Murdoch University, 2006), vi.

⁸³ Chapter 3, 62.

because of the nebulous nature of the concept of “environment”.⁸⁴ The need to constantly articulate it makes the socio-ecological concept highly vulnerable to changing cultural narratives about the value of the environment.

Secondly, there are tensions between the constructions of the environment as a legal object and a legal subject.⁸⁵ The construction of the environment as a legal object hinges on the cultural narrative that the environment is worthy of protection, and unable to protect itself. Legal limits are imposed on the actions of others precisely because the environment itself cannot defend its own rights; and indeed, as a legal object, has no rights to defend. On the other hand, the construction of the environment as a legal subject confers both legal rights and legal status.⁸⁶ As a legal person, the organisation representing the environment has legal rights, and is no longer dependent on human protection. The environmental organisation can (at least in theory) stand up for itself.

Thirdly, as the legibility of the environment to the law increases, this conceptual framework predicts that the part of the environment represented by that construct will be narrowed. One of the consistent challenges for representing the environment in law is specifying which elements of the environment are included in any given definition. Fundamentally, environmental law is a way to trade off potential benefits and losses in different parts of the environment (including human outcomes) to achieve ecologically sustainable development.⁸⁷ This trade-off is particularly apparent when the environment is represented by an organisation with the attributes of a legal subject. When the environment has its own legal powers, rights and duties, effective exercise of those powers and rights requires clarity of purpose, and this depends on a narrower, more specific definition of environment.

The conceptual framework highlights the importance of defining the ‘environment’ to be represented by the legal subject, by explicitly connecting competence and capacity. The EWMs have attempted to resolve the issue of specificity by using an organisational form

⁸⁴ Grinlinton, above n 63, 82.

⁸⁵ Chapter 3, 82.

⁸⁶ Gail Morgan, ‘The Dominion of Nature: Can Law Embody a New Attitude?’ (1993) 60 *Bulletin of the Australian Society of Legal Philosophy* 43, 46.

⁸⁷ Fisher, *Australian Environmental Law*, above n 56.

that acts on behalf of particular parts of the aquatic environment (where water rights are available), with capacity to hold legal rights, and the competence to use those rights.⁸⁸

This combination of both capacity and competence is what distinguishes the EWMs from other attempts to personify the environment in law, such as the broad legal rights created in Ecuador,⁸⁹ which depend on other citizens to enforce them,⁹⁰ and Bolivia, where the rights for nature were intended to be supported by the creation of the *Defensoría de la Madre Tierra*, which would operate as an ombudsman for nature's rights.⁹¹ This office has yet to be created, and its absence has weakened Bolivia's legal rights for nature.⁹² In New Zealand, Te Awa Tupua (the Whanganui river catchment)⁹³ is also supported by an organisation to act as a guardian (although there is significant unresolved conflict between the different uses and definitions of the environment, particularly the ongoing use of the river to generate hydropower).

The EWMs are organisations with the attributes of legal personality, and their creation and operation generates a paradox: by constructing the aquatic environment as a legal subject, with increased legal rights and powers, the EWMs have also undermined the cultural narratives that support protection of the environment. The conceptual framework helps to make sense of this paradox as a result of the interaction between the competing narratives that underpin the construction of the environment as a legal object and a legal subject. In doing so, the conceptual framework places the emergence of this paradox within the broader context of the quest to enhance the legibility of the environment to law. As a result, the conceptual framework suggests that the paradox may well apply in other environmental law settings.

IV. UNDERSTANDING THE PARADOX OF THE EWMs: FUTURE RESEARCH

To understand the implications of the paradox of the EWMs for environmental law more broadly, there are three key targets for future research. Firstly, the EWMs themselves

⁸⁸ See discussion in Chapters 2 and 7; see also Ngaire Naffine, 'Who are Law's Persons? From Cheshire Cats to Responsible Subjects' (2003) 66(3) *Modern Law Review* 346.

⁸⁹ *Constitution of the Republic of Ecuador 2008*, articles 71-74.

⁹⁰ Article 71 of the Ecuadorian constitution empowers 'all persons, communities, peoples and nations [to] call upon public agencies to enforce the rights of nature'.

⁹¹ *Ley de Derechos de la Madre Tierra*, Law 071 of the Plurinational State of Bolivia.

⁹² Carwil Bjork James, 'Bolivia's new Mother Earth Law to sideline indigenous rights' *Climate Connections* (29 August 2012) <<http://climate-connections.org/2012/08/29/20968/>>.

⁹³ *Te Awa Tupua (Whanganui River Claims Settlement) Bill 2016* (NZ) s 14(1).

provide opportunities to examine how they are seeking to understand and redress the paradox, which directly affects their ability to operate effectively. Secondly, the conceptual framework creates a dialogue between market environmentalism and legal rights for nature, and highlights opportunities as well as future challenges. Thirdly, the emerging field of behavioural economics offers a way to quantify the extent and importance of the paradox. Each future research topic is discussed in more detail below.

A. *Lessons from the EWMs*

Law is central to the institutional design that structures discourse around water and also a major instrument to effect the implementation of those normative objectives.⁹⁴

The EWMs demonstrate the power of cultural narratives to shape the regulatory response to environmental problems. In the western USA, the narrative is one of *collaboration not competition*, and the NGO EWMs in particular work hard at maintaining public support for the idea that the environment is worthy of protection. In south-eastern Australia, the narrative is that the aquatic environment is *just another water user*, and can and should look after itself (via the actions of the EWMs).⁹⁵ As Chapter 7 showed, there have been distinct costs imposed on the EWMs as a result of the tension between these narratives.

For example (as discussed in Chapter 7), even though the water resource management frameworks of south-eastern Australia continue to frame the environment as critically important to protect, there is a new legal limit on the volume of water held by the Commonwealth Environmental Water Holder (CEWH) that has been acquired on the market, which was passed in 2015.⁹⁶ This limit is less than the volume of water recovery committed to by government under the Murray-Darling Basin Plan, and imposes a legal limit on the activities of the CEWH as a water user that does not apply to other water users. This limit weakens both narratives, as the EWMs are expected to be the voice of the aquatic environment (thus weakening the legal object and its dependence on public interest), as well as reducing the rights and powers of the legal subject (the EWMs).

⁹⁴ Lee Godden, 'Property in Urban Water: Private Rights and Public Governance' in Patrick Troy (ed), *Troubled Waters: Confronting the Water Crisis in Australia's Cities* (ANU E Press, 2008) 157, 162.

⁹⁵ See Chapter 7, 201.

⁹⁶ *Water Amendment Act 2015* (Cth) Schedule 1; see also The Hon Greg Hunt MP and The Hon Bob Baldwin MP, *Joint Media Release: Coalition Delivers Election Commitment with 1500GL Water Buyback Cap* (Commonwealth of Australia, 14 September 2015).

Although the EWMs have not articulated the problem in precisely this way, the EWMs in both Australia and the USA appear to be aware of the need to bring these narratives together, and strengthen both of them. Each jurisdiction has approached this task differently, but neither has fully resolved the problems caused by an organisation with legal personality acting on behalf of the environment.

In Australia, there is an increasing awareness of the need to engage with local communities on the value of environmental water, and provide opportunity for input on how that water is used, to shore up the narrative that the aquatic environment is worthy of protection. There is a belief that NGO EWMs provide a way to do this:

There needs to be a benefit to their local community... What I see is that NGOs can be involved in delivering... 20% of the water but doing it in a way that is highly engaged with communities and at sites of greatest importance to them.⁹⁷

In 2012 the CEWH entered an agreement with a local South Australian NGO to manage environmental water in conjunction with local communities, including irrigators.⁹⁸ The CEWH has since entered into more agreements for local management of environmental water, including with the Renmark Irrigation Trust and the Ngarrindjeri Regional Authority (an organisation representing indigenous Australians).⁹⁹

The Victorian Environmental Water Holder (VEWH) has also been building relationships with the broader community. Every 18 months, they hold an 'Environmental Water Matters' forum with thirty 'farming, Aboriginal, environment and recreation community and industry groups.'¹⁰⁰ The VEWH describes these forums as 'a fantastic opportunity to hear from others who are interested in environmental water and for us to get feedback about how environmental watering is managed.'¹⁰¹ These conversations help to broaden the support of the community for environmental flows,

⁹⁷ Interview HRA. This interviewee acknowledged that the bulk of environmental water (eg, the 80%) would still need to be managed from a top-down, basin-wide perspective.

⁹⁸ Commonwealth Environmental Water Office and Nature Foundation SA, *Press Release: Commonwealth Works with Nature Foundation South Australia to Deliver Water (24 October)* (Commonwealth Environmental Water Office and Nature Foundation SA, 2012).

⁹⁹ Australian Government Department of Environment and Energy, *Agreements on the use of Commonwealth environmental water* (accessed 28 November 2016) <<https://www.environment.gov.au/water/cewo/publications/agreements-use-commonwealth-environmental-water>>.

¹⁰⁰ Victorian Environmental Water Holder, *Community benefits* (2016) <<http://www.vewh.vic.gov.au/environmental-water/shared-community-benefits>>.

¹⁰¹ Ibid.

and may eventually help to create more local champions who see the work of the EWMs as part of sustainable water resource management in the community.

In the USA, the EWMs have been focused on building collaboration and consensus, and now need to enhance the legal power of the EWMs. One of the ways this could occur is through increasingly efficient water markets, which would enable the EWMs to participate as any other competitor in the market. Although the western USA has significant path dependent barriers to efficient water markets, there is evidence of ongoing interest in improving the efficacy and efficiency of their water markets.¹⁰²

One of the more fundamental problems for the western USA is the legal limit on the organisations which can hold instream flow rights. As Chapter 6 described, in every state except Montana, only a nominated government agency can hold water rights for the purposes of instream flows:¹⁰³

There have been attempts to get legislation for private instream flows, and that has always been met with fierce opposition from water users, because they're afraid there wouldn't be that balance.¹⁰⁴

Although the government agencies are identifiable as EWMs, they are often part of the same umbrella organisation with responsibility for enforcing access to water rights.¹⁰⁵ As an EWM staff member noted:

[B]ecause they are the water right holder, they have some discretion to enforce or not enforce their own water rights... It's a politically unpopular decision to enforce their own water rights, but do they then let someone continue to take water and injure their instream water rights? Because they are the water right holder and the regulator, they are in a difficult position... It's not how it's supposed to be, it creates a bit of schizophrenia on the state's part, because of conflict avoidance and politics, typically the state errs on the side of under enforcement of instream flows.¹⁰⁶

¹⁰² Thomas Garry, 'Water Markets and Water Rights in the United States: Lessons from Australia' (2007) 4 *Macquarie Journal of International and Comparative Environmental Law* 23; Robert David Pilz, 'Lessons in Water Policy Innovation From the World's Driest Inhabited Continent: Using Water Allocation Plans and Water Markets to Manage Water Scarcity' (2010) 14 *Water Law Review* 97; Garrick and O'Donnell, above n 37; Dustin Garrick and Bruce Aylward, 'Transaction Costs and Institutional Performance in Market-Based Environmental Water Allocation' (2012) 88(3) *Land Economics* 536; Dustin Garrick, Stuart M Whitten and Anthea Coggan, 'Understanding the Evolution and Performance of Water Markets and Allocation Policy: A Transaction Costs Analysis Framework' (2013) 88 *Ecological Economics* 195; Dustin Evan Garrick, *Water Allocation in Rivers Under Pressure: Water Trading, Transaction Costs, and Transboundary Governance in the Western USA and Australia* (Edward Elgar, 2015).

¹⁰³ Chapter 6, Table 10.

¹⁰⁴ Interview CWCB.

¹⁰⁵ See discussion in Garrick and O'Donnell, above n 37.

¹⁰⁶ Interview DRC.

As more instream flows are recovered by the EWMs, there will be more pressure on the state organisations to formally separate these functions. In doing so, they will also strengthen the narrative that the environment (as represented by the EWM) can, and should, look after itself (through the actions of the EWMs).

Fundamentally, the EWMs must be able to meet two goals: ‘to provide more water for the environment, [whilst also] recognizing that the environment is different’.¹⁰⁷ Doing so will require them to actively engage with the way the environment is constructed in law, and the power of the law to construct and shape cultural narratives. Examining how the EWMs navigate the tension between these goals will provide further insight into the nature of the paradox, and the capacity to resolve it.

B. *A New Dialogue in a Contested Space*

This thesis creates a new dialogue between two often ideologically opposed paradigms: legal rights for nature, and market environmentalism. Both paradigms construct the environment as a legal subject, and both paradigms rely on the idea that the environment is worthy of protection in order to do so.

The legal rights for nature movement is deeply ecocentric, and seeks to create legal rights for the environment in order to shift existing legal systems so that they can better protect the environment, and seek to empower the environment itself in order to do so: ‘we must stop thinking of nature as our slave.’¹⁰⁸ Participants in this paradigm often construct property rights as the antithesis of protecting the environment. Aldo Leopold, one of the early and preeminent voices in the legal rights for nature movement argued that ‘[w]e abuse land because we regard it as a commodity belonging to us.’¹⁰⁹ Eric Freyfogle specifically drew on the legal object/subject dichotomy when he argued:

People... are subjects, and the land is merely an object, possessing no moral or legal worth and counting for nothing. There is at work here a distinct dichotomy of subject and object, legally worthy and legally worthless. People are the ones who own and dominate, and the land is the thing that is owned and dominated.¹¹⁰

¹⁰⁷ Interview DEWNR.

¹⁰⁸ Eric T Freyfogle, ‘Ownership and Ecology’ (1993) 43(4) *Case Western Reserve Law Review* 1269, 1281.

¹⁰⁹ Aldo Leopold, *A Sand County Almanac and Sketches Here and There* (Oxford University Press, 1949), viii-ix.

¹¹⁰ Freyfogle, above n 108, 1274.

Market environmentalism, however, is ‘a mode of resource regulation which promises both economic and environmental ends via market means’.¹¹¹ Anderson and Libecap argue that by creating and regulating ‘missing markets’, it is possible to address the problems of both market failure and government failure, by creating the capacity for innovative and efficient provision of environmental goods.¹¹² For market environmentalists, markets and property rights, ‘rather than being seen as contributing to environmental degradation, are regarded as a large part of the solution’.¹¹³ Shared resource markets, such as water markets, enable the environment to participate within the market (through the actions of its representative organisation), and depend on a construction of the environment with the legal powers and rights necessary to do so.

Both market environmentalism and the legal rights for nature movement, therefore, can operate to construct the environment as a legal subject.¹¹⁴ Acknowledging this intersection between these very different ways of thinking about the environment offers a powerful insight for the legal rights for nature movement. Given that legal rights for nature remains largely outside the mainstream practice of environmental law, market environmentalism may offer a pragmatic way towards creating legal rights for nature that may otherwise be difficult to achieve. The growing use of markets to manage resources and minimise environmental problems around the world can thus be seen as an opportunity

[T]o accord nature a fraternal rather than an exploited role – even when the resulting institutions resolve in particular cases not to forgo certain human opportunities “for nature’s sake” – [and] might well make us different persons from the manipulators and subjugators we are in danger of becoming.¹¹⁵

However, as Anderson and Libecap acknowledge, ‘[e]nvironmental policy is especially vulnerable to norm invasion’.¹¹⁶ Environmentalists typically regard neoliberalism and market environmentalism as ‘specific, potentially pernicious ideologies’ that maintain

¹¹¹ Karen Bakker, ‘Neoliberalizing nature? Market environmentalism in water supply in England and Wales’ in Nik Heynen et al (eds), *Neoliberal Environments: False promises and unnatural consequences* (Routledge, 2007) 101, 102.

¹¹² Anderson and Libecap, above n 23, xiv, 4, 13.

¹¹³ Godden, ‘Property in Urban Water’, above n 94, 160.

¹¹⁴ In practice, both movements also rely on the use of specific organisations with the necessary capacity and competence to represent the environment.

¹¹⁵ Laurence H Tribe, ‘Ways Not to Think About Plastic Trees: New Foundations for Environmental Law’ (1974) 83 *Yale Law Journal* 1315, 1346.

¹¹⁶ Anderson and Libecap, above n 23, 5.

the 'hegemony of highly individualistic and exclusive property rights over nature.'¹¹⁷ In a less pointed manner, Dovers has argued that:

[M]arket-oriented policy approaches... are not simply "another option in the toolbox", but are transformative policy options that carry with them institutional change... property rights instruments... shift the policy logic from distributional equity plus some ecological consideration to economic efficiency plus sustainability concerns.¹¹⁸

The example of the EWMs highlights the power of applying a market-based solution to an environmental problem, but also demonstrates the capacity of an altered narrative to weaken environmental outcomes.¹¹⁹ This thesis is a reminder that law does not operate in a vacuum, and although there is capacity for market environmentalism and legal rights for nature paradigms to engage in meaningful dialogue, there are also real risks of doing so. This work underscores the importance of new research to see if these findings apply to other fields of environmental law, and to understand the nature of the paradox itself.

C. *Application of Behavioural Economics*

[A]ttempts to thoroughly define individual irrigators' rights, and thereby constrain the rights of others, has led to increased pressure on those elements of the resource that are presently less clearly articulated.¹²⁰

EWMs exist in the context of water markets, particularly in Australia, where the markets are highly active.¹²¹ The emerging field of behavioural economics offers opportunities to understand the way that the use of market mechanisms can have effects beyond the scope of the market itself.¹²² Dan Ariely argued that this effect can be understood in terms of 'market norms' (which guide interactions in a market context) and 'social norms' (which guide interactions in a non-market, or social, context).¹²³ Ariely draws on the work of Gneezy and Rustichini, and their examination of what happened to a child

¹¹⁷ Nik Heynen et al, 'Introduction: False Promises' in Nik Heynen et al (eds), *Neoliberal Environments: False Promises and Unnatural Consequences* (Routledge, 2007) 1, 12.

¹¹⁸ Steve Dovers, 'Urban Water: Policy, Institutions and Government' in Patrick Troy (ed), *Troubled Waters: Confronting the Water Crisis in Australia's Cities* (ANU E Press, 2008) 81, 90.

¹¹⁹ See discussion of the paradox of the EWMs in Chapter 7, 220.

¹²⁰ Lin Crase and Brian Dollery, 'The Institutional Setting' in Lin Crase (ed), *Water Policy in Australia: The Impact of Change and Uncertainty* (Resources For the Future, 2008) 74, 81.

¹²¹ See discussion in Chapters 2, 3, 5 and 6.

¹²² Christine Jolls, Cass Sunstein and Richard Thaler, 'A Behavioural Approach to Law and Economics' (1998) 50 *Stanford Law Review* 1471; Cass R Sunstein, 'Endogenous Preferences, Environmental Law' (1993) 22(2) *Journal of Legal Studies* 217.

¹²³ Dan Ariely, *Predictably Irrational: the Hidden Forces that Shape Our Decisions* (HarperCollins Publishers, 2008), 67-88.

care centre that imposed a fine on parents who were late in collecting their children.¹²⁴ In this case, the original intent was to create a disincentive for late collection in the form of a monetary fine. However, what actually happened was that the fine altered the behavioural norms guiding the interaction, so in the mind of the parents, instead of feeling guilty about being late, they framed the fine as the *price* of the additional time. Late pickups actually increased following the intervention of the fine, and the child care operators considered the strategy a failure. They attempted to go back to the original incentives (because guilt had clearly been more effective than the fine), but when the fine was removed, the parents considered that they were now receiving a service for free. The market norms had replaced the social norms, and it was particularly difficult to reinstate the social norms once again. Ariely argues that the power of market norms to displace social norms is widespread. Considered in the light of the conceptual framework and the example of the EWMs, this poses a particular challenge for market environmentalism, and its potential power to replace the 'social norm' that the environment is worthy of protection (and the public interest regulation as the method of protection) with the 'market norms' of user pays (and private interest regulation).

As a result, the still relatively young field of behavioural economics opens up important avenues of research. In addition to shedding light on the norms (and cultural narratives) underpinning the use of markets, behavioural economics can also address the capacity of the competing narratives to change the underlying social preferences about the value of the environment. Market environmentalism is based on the ideas of neo-classical economics, which assumes that such preferences are exogenous, and that the market is 'weightless in the fashioning of preferences'.¹²⁵ However, the EWMs have demonstrated the capacity to affect the preferences and values of their communities by participating in water markets, and the operation of the EWMs in south-eastern Australia and the western USA tends to shift the community value of the environment towards one of two competing cultural narratives.¹²⁶ Behavioural economics enables preferences to be considered as endogenous, and affected by the legal mechanism used to achieve a

¹²⁴ Uri Gneezy and Aldo Rustichini, 'A Fine is a Price' (2000) 29(1) *The Journal of Legal Studies* 1

¹²⁵ Pierre Schlag, 'Four Conceptualizations of the Relations of Law to Economics (Tribulations of a Positivist Social Science)' (2012) 33(6) *Cardozo Law Review* 2357, 2366.

¹²⁶ See discussion in Chapter 7.

market outcome.¹²⁷ By applying behavioural economics in an experimental setting, future research could attempt to quantify the extent of the paradox (ie, how much the creation and operation of the EWMs undermines the cultural narrative (or preference) for protecting the environment as a legal object), and how altering the legal framework supporting the creation and operation of the EWMs could help to resolve the paradox.

V. CONCLUSION

Nature will *always* be contested terrain. We will never stop arguing about its meanings, because it is the very ground on which our debates must occur.¹²⁸

In this thesis, I have shown what happens when the aquatic environment is constructed as a legal subject (via the EWMs) in south-eastern Australia and the western USA. Whilst the EWMs have been successful at increasing the quantity of water available for the aquatic environment, this thesis has demonstrated the need to broaden the evaluation of their creation and operation. In particular, the EWMs in these jurisdictions give rise to a paradox: they simultaneously increase the legal power of the aquatic environment, by giving it the competence and capacity of a legal person, whilst also weakening the cultural narrative that the environment is worthy of protection. In the case of the EWMs, this paradox has, in turn, led to significant constraints on the legal personhood rights and powers of the EWM organisations.

The EWMs expose the tension between the construction of the aquatic environment in water law simultaneously as a legal object and a legal subject.¹²⁹ The construction of the aquatic environment as a legal object depends on the narrative that the aquatic environment is worthy of protection, but legally weak, with no legal rights. Alternatively, the construction of the aquatic environment as a legal subject confers both legal rights and legal status.¹³⁰ As a legal subject, the environmental organisation is no longer so dependent on human protection, and can (at least in theory) take legal action to protect its own legal rights.

¹²⁷ Aviad Heifetz, Ella Segev and Eric Talley, 'Legislation with Endogenous Preferences' in Nir Vulkan, Alvin E Roth and Zvika Neeman (eds), *The Handbook of Market Design* (Oxford University Press, 2013) 456; Sunstein, 'Endogenous Preferences, Environmental Law', above n 122.

¹²⁸ William Cronon, 'Introduction: In Search of Nature' in William Cronon (ed), *Uncommon Ground: Toward Reinventing Nature* (W.W. Norton & Co, 1995) 23, 52; emphasis in original.

¹²⁹ Chapter 3, 87; and Chapters 5 and 6.

¹³⁰ Morgan, above n 86, 46.

I have also shown *why* construction matters so much for the aquatic environment, and why shifts in the narratives can be so powerful. The answer lies in the earliest legal construct of the environment as a socio-ecological concept, which needs to be constantly articulated in law.¹³¹ This construction of the environment in law is a nuanced, contingent concept reflecting the dynamic relationship between the environment and human society. The conceptual framework and the case studies demonstrate this dynamism in the changing relationship between the aquatic environment and human water users, reflecting variability in water availability, ecological change and shifts in the value placed on a healthy aquatic ecosystem.¹³²

The creation and operation of the EWMs is closely related to the use of water markets in water resource management. Market environmentalism has been portrayed as a value-free mechanism to achieve environmental outcomes in ways that can avoid central government regulation.¹³³ However, this thesis shows that this is problematic for two reasons. Firstly, whilst the market is a mechanism that reflects underlying preferences, it also has the capacity shape them.¹³⁴ Scholars opposed to neoliberalism have used this as an argument against using markets at all,¹³⁵ but the evidence of the ability of markets to deliver environmental outcomes means that regulators and policy-makers are likely to continue to use market mechanisms in this way.¹³⁶ It is thus incumbent on researchers to develop ways to predict the long-term implications of market environmentalism, to broaden evaluation to include these long-term effects, and understand how to mitigate them.

Secondly, there are no easy answers to the problem of environmental water recovery. Whilst meeting environmental water demands efficiently is important,¹³⁷ it may not be possible to maintain all the industries and communities that depend on water use in its current form whilst also maintaining an aquatic environment at the desired quality. In Australia, the EWMs have attempted to use the market to avoid the political decisions of

¹³¹ Chapter 3 62, 87; this chapter, 237.

¹³² Chapters 5-7.

¹³³ Driesen, above n 23; Anderson and Libecap, above n 23; Gunningham, above n 23.

¹³⁴ Heifetz, Segev and Talley, above n 127; Mark Peacock, 'Rationality and Social Norms' in John Foster (ed), *Valuing Nature? Economics, Ethics and Environment* (Routledge, 1997) 67.

¹³⁵ Nik Heynen et al (eds), *Neoliberal Environments: False Promises and Unnatural Consequences* (Routledge, 2007).

¹³⁶ Anderson and Libecap, above n 23.

¹³⁷ J Pittock and B A Lankford, 'Environmental Water Requirements: Demand Management in an Era of Water Scarcity' (2010) 7(1) *Journal of Integrative Environmental Sciences* 75.

where and how water should be used. In the USA, the EWMs have attempted to use community support and collaboration to avoid difficult conversations about long-term sustainability. Both these strategies of avoidance are likely to be flawed.

This thesis has demonstrated the importance of the broader legal and historical context to understand the implications of using an organisation such as the EWMs to acquire and manage water on behalf of the aquatic environment. While the findings relate specifically to the creation and operation of the EWMs in south-eastern Australia and the western USA, this analysis, and in particular, the conceptual framework developed in this thesis, show that these findings are likely to be of interest to many environmental scholars.

The creation and operation of the EWMs shifts the debate beyond *whether* the aquatic environment can be constructed in law as a legal subject with rights and powers, to the question of how this can be *implemented*. In particular, the paradox of the EWMs suggests that more attention ought to be paid to exactly *how* 'nature' is given form and power within the law.

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Appendices

I. APPENDIX A: FULL RESULTS OF LEGAL REVIEW (CHAPTER 2)

Tables 16-18 present the full set of results from the review of the legal context of EWMs undertaken as part of Chapter 2. For ease of navigation, all references in the tables are given as endnotes, beginning on page 289.

Table 16 Jurisdictions with environmental water managers

Jurisdiction	Modern water rights	Water markets	Environmental water rights	Environmental Water Manager
Australia (Federal)	Water rights defined by state legislation ¹	MDB Cap; national water purchase program (tenders) ²	Planned (rules based) and held environmental water ³	CEWH and MDBA (TLM water) ⁴
Australia: Australian Capital Territory	Trade is possible ⁵	MDB Cap and active water markets ⁶	No held environmental water although environmental flows are specified in plans, including releases from dams ⁷	No: environmental flows are managed by government department ⁸
Australia: New South Wales	Water access licences held by individuals and transferable separate to land ⁹	MDB Cap and individual catchment caps; active water markets in irrigation districts ¹⁰	Both planned (rules based) and held environmental water ¹¹	RiverBank (OEH); Environmental Water Trust, Murray-Darling Wetlands Ltd; ¹² water also provided by Healthy Rivers Australia, CEWH and MDBA (TLM) ¹³
Australia: Queensland	Licences are separate from land and can be transferred ¹⁴	Active water markets in some regions ¹⁵	Rules-based environmental water (although CEWH holds some water entitlements) ¹⁶	No specific state-based EWM, although the CEWH holds and uses environmental water in Queensland ¹⁷
Australia: South Australia	Water licences held by individuals and transferable separate to land ¹⁸	MDB Cap and individual catchment caps; active water markets in irrigation districts ¹⁹	Not defined in legislation, but water can be held and used for environmental purposes ²⁰	Healthy Rivers Australia; ²¹ water also provided by CEWH and MDBA (TLM) ²²
Australia: Victoria	Water shares and water allocations held by individuals and transferable separate to land ²³	MDB Cap and individual catchment caps; active water markets in irrigation districts ²⁴	Environmental water reserve ²⁵	Victorian Environmental Water Holder (VEWH); water also provided by Australian Conservation Foundation, CEWH and Murray-Darling Basin Authority (The Living Murray program) ²⁶
Canada: Alberta	Transferable water rights (Water Act 2000) ²⁷	Some basins are capped; some trading of water rights but limited; temporary markets likely to be more active ²⁸	Instream flow protection, but environmental flows studies make recommendations only; Minister for Environment can reserve water, preventing appropriation; only government can hold instream water for environmental purposes ²⁹	Water Conservation Trust of Canada ³⁰ received water licence donation ³¹

Jurisdiction	Modern water rights	Water markets	Environmental water rights	Environmental Water Manager
Mexico	Water rights transfers and rights markets ³²	Yes, but varied with most activity in temporary trade and in localised areas ³³	Minimum instream flows and National Standard for instream flows ³⁴	NGOs operating on transboundary rivers (Environmental Defense Fund and other NGOs); WWF water trust on Rio Grande ³⁵
USA: Federal	Water rights defined by states (see state-specific references)	Water markets exist locally in state jurisdictions (see state-specific references)	Endangered Species Act resulted in instream flow protection ³⁶	Federal Dept of Interior water acquisition program – not considered an EWM under definition in this thesis
USA: Arizona	Transferable water rights (Arizona Revised Statutes, §§ 45-156(B))	Reported water transactions indicate active water market ³⁷	Legal protection of instream flows ³⁸	State (Arizona Water Protection Fund) and private (Nature Conservancy) ³⁹
USA: California	Transferable water rights held by individuals (California Water Code § 109)	Reported water transactions indicate active water market ⁴⁰	Legal protection of instream flows ⁴¹	Federal (Dept of Interior Water Acquisition Program), State (multi-agency Environmental Water Account and Environmental Water Program) ⁴² and private (Sierra Water Trust); as well as privately held physical water (Sanctuary Forest Mattole Flow; Scott River Water Trust) ⁴³
USA: Colorado	Prior appropriation (Constitution and Colorado Revised Statutes)	Reported water transactions indicate active water market ⁴⁴	Legal protection of instream flows ⁴⁵	State (Colorado Water Conservation Board) and private (Colorado Water Trust) ⁴⁶
USA: Idaho	Prior appropriation with formalised trading and leasing capacity ⁴⁷	Reported water transactions indicate active water market ⁴⁸	Legal protection of instream flows ⁴⁹ but generally only unappropriated water ⁵⁰	Statutory instream water flows in Snake River and Lemhi River (Bureau of Reclamation and local Lemhi water bank) ⁵¹
USA: Montana	Permit system with transferable rights (Montana Code Annotated, Water Use Act 1973)	Reported water transactions indicate a water market but not very active ⁵²	Legal protection of instream flow; ⁵³ substantial flows in Yellowstone and Missouri basins	State (Montana Fish, Wildlife and Parks) and private (Trout Unlimited, Clark Fork Coalition and Montana Water Trust) and private individuals converting to instream flow ⁵⁴
USA: Nevada	Transferable water rights (Nevada Revised Statutes §§ 533-345)	Reported water transactions indicate active water market ⁵⁵	Legal protection of instream flows ⁵⁶	Bureau of Reclamation and state Department of Wildlife permanent water purchase program ⁵⁷
USA: New Mexico	Water rights can be severed from land and transferred (Annotated Statutes of New Mexico, §§ 72-5-22,23)	Reported water transactions indicate active water market ⁵⁸	Legal protection of instream flows ⁵⁹	A state program (Strategic Water Reserve) to meet ESA requirements and interstate flows ⁶⁰ and the Rio Grande Endangered Species Collaborative program ⁶¹
USA: Oregon	Permit system and can be transferred (Oregon Revised Statutes § 537.220)	Reported water transactions indicate active water market ⁶²	Legal protection of instream flows ⁶³	Federal (Bureau of Reclamation) and private (Freshwater Trust and Deschutes River Conservancy, Klamath Basin Rangeland Trust) ⁶⁴
USA: Texas	Prior appropriation; water transfers allowed ⁶⁵	Reported water transactions indicate active water market ⁶⁶	Legal protection of instream flows ⁶⁷	State (Texas Water Trust) and private (specific river NGOs leasing water as well as river rehabilitation) ⁶⁸
USA: Utah	Water rights transferred by deed (Utah Code)	Reported water transactions indicate a water market but not	Legal protection of instream flows ⁷⁰	State Division of Wildlife Utah Trout Unlimited ⁷¹

Jurisdiction	Modern water rights	Water markets	Environmental water rights	Environmental Water Manager
	Annotated § 73-1-10)	very active ⁶⁹		
USA: Washington	Water transfers allowed and water banking program ⁷²	Reported water transactions indicate a water market but not very active ⁷³	Legal protection of instream flows ⁷⁴	Federal (Bureau of Reclamation), state (Dept of Ecology established state government water trust) and private (Washington Water Trust and other NGOs); some private funding used by state programs (BPA) ⁷⁵

Table 17 Jurisdictions that meet all three conditions with no environmental water managers

Jurisdiction	Modern water rights ⁷⁶	Water markets	Environmental water rights	Environmental Water Manager
Chile	Water licences are separate from land and can be transferred.	Yes (although activity level assessments vary) ⁷⁷	Minimum environmental flows since 2005 but poor implementation record ⁷⁸	No EWMs
South Africa	Water use authorisations for irrigations may be temporarily transferred ⁷⁹	Trade treated like new application, so scrutinized and slow ⁸⁰ but active markets in local areas (eg Lower Orange River) ⁸¹ not great depth or breadth ⁸²	Ecological water reserve defined under the act as one of the highest priority uses, ⁸³ but implementation still incomplete ⁸⁴	No EWMs
Spain: Canary Islands (Tenerife)	Yes	Highly active and competitive water market ⁸⁵	EU Water Framework Directive to protect aquatic ecosystems ⁸⁶	No EWMs

Table 18 Jurisdictions that do not meet one or more of the conditions

Jurisdiction	Modern water rights ⁸⁷	Water markets	Environmental water rights	Environmental Water Manager
Australia: Northern Territory	Trade is possible ⁸⁸	No water trading ⁸⁹	No environmental water licences but environmental water allocations specified in plans ⁹⁰	No: environmental flows are managed by government department ⁹¹
Australia: Tasmania	Licences are personal property and can be transferred ⁹²	Some water trading but not active markets ⁹³	No environmental water licences ⁹⁴	No: environmental flows are managed by government department ⁹⁵
Australia: Western Australia	Water rights are only partially unbundled ⁹⁶	Some water trading ⁹⁷	No environmental water licences ⁹⁸	No: environmental flows are managed by government department ⁹⁹
Burundi	Concessions (permanent right to extract water) can be transferred with authorisation (Water Law 1992 Art 35)	None	None	No EWMs
Cambodia	Water licence can be transferred separately to land subject to approval.	None	Government can declare protected use zones when quantity or quality too low; some environmental flows work on Mekong hydropower projects ¹⁰⁰	No EWMs
Canada: British	Transfer within	None	Water use planning	No EWMs

Jurisdiction	Modern water rights ⁸⁷	Water markets	Environmental water rights	Environmental Water Manager
Columbia	province (Water Act 1996)		includes environmental flow protection; 'sensitive streams' prohibit water takings (Fish Protection Act) ¹⁰¹	
Canada: Nova Scotia	Transfers possible with Minister's approval ¹⁰²	None	Habitat protection as part of licence granting process ¹⁰³	No EWMs
Canada: Nunavut	Transfers possible ¹⁰⁴	None	No specific environmental flow requirements ¹⁰⁵	No EWMs
Canada: Ontario	Transfers possible but only with written approval ¹⁰⁶	None	Instream flows protection when permits issued; streams categorised on level of risk ¹⁰⁷	No EWMs
Canada: Saskatchewan	Licences transferable but must be used for original purpose ¹⁰⁸	None	No legislation addressing environmental flows ¹⁰⁹	No EWMs
Canada: Yukon Territories	Not quite: water licences can be assigned but are still linked to appurtenant use which must also be assigned ¹¹⁰	Some transfers have occurred but not many ¹¹¹	No specific environmental flow requirements in legislation but there are some conservation licences ¹¹²	Ducks Unlimited Canada holds a water licence for wetlands, ¹¹³ but is not considered to be an EWM in this instance (no active water portfolio; too broad in objectives to be classified as EWM)
China	Water law specifies water use permits at the individual level ¹¹⁴	No: inadequate water rights and ad hoc transfers ¹¹⁵	Environmental water recovery for Yellow River ¹¹⁶ and government in process of amending water plans to account for environmental flows ¹¹⁷	No EWMs
Ethiopia	Permits can be transferred with approval	None	No (some flows studies undertaken but limited implementation) ¹¹⁸	No EWMs
Ghana	Transfer is subject to approval	None	Some minimum flows release from dams (eg Volta Basin) ¹¹⁹	No EWMs
Guinea	Water concessions can be transferred provided that conditions and purposes substantially unchanged	None	No (except as multi-country agreements)	No EWMs
Honduras	Contracts for water use for irrigation purposes can be transferred with government approval.	None	Minimum flows on a case by case basis with new dams and hydropower ¹²⁰	No although IUCN and Nature Conservancy are active in helping to establish environmental flows.
Italy	Concessions can be transferred subject to government approval.	None ¹²¹	Minimum instream flows ¹²²	No EWMs
Japan	Water abstraction permissions can be transferred subject to approval by river administrator	None	No, although fluvial consideration is now part of River Law ¹²³	No EWMs
Kyrgyzstan	Water use permits are not linked to land and can be transferred, except when used for irrigation (Water Code 2004)	None ¹²⁴	No ¹²⁵	No EWMs
Lithuania	Water permits can be	None	Environmentally	No EWMs

Jurisdiction	Modern water rights ⁸⁷	Water markets	Environmental water rights	Environmental Water Manager
	transferred subject to water authority approval		protected water debit must be passed by hydropower stations (Law on Water, Art 20) and EU Water Framework Directive	
Mali	Authorisations and concessions transferable with government approval	None	No	No EWMs
Namibia	Conserved irrigation water can be transferred subject to approval	No (still refining water rights definitions)	No: legislation allows for creation of reserve for aquatic environments but this has not been achieved ¹²⁶	No EWMs
Nepal	Water licence can be transferred to another person	None	Nothing in law although new hydropower starting to require minimum flows ¹²⁷	No
Netherlands	Water users can obtain rights via property transfer, acquisition, inheritance or reallocation ¹²⁸	None	EU Water Framework Directive to protect aquatic ecosystems	No EWMs
Peru	Water use rights can be transferred subject to authority	None ¹²⁹	Environmental flows part of new water laws ¹³⁰	No - water funds support ecosystem services that provide water for users, not environment ¹³¹
Portugal	Licences and concessions can be transferred subject to government approval	None ¹³²	No	No EWMs
Slovenia	Water rights can be transferred but initial conditions must still be met (<i>Water Act 2002 Art 121</i>)	None	No (water quality main issue) ¹³³	No EWMs
Tunisia	Concessions can be transferred subject to government approval; authorisations and water use rights cannot	No (water use rights are what farmers have, which cannot be transferred) ¹³⁴	No	No EWMs
United Kingdom	Water abstraction licences can be transferred; but subject to lengthy approvals and requirement to use same specified abstraction point	Extremely minimal trading (53 trades in total between 2003-2011) ¹³⁵	Protection of instream flows via licence conditions, but environmental flows quite different to irrigator rights	No EWMs
Uruguay	Concession is not linked to land and can be transferred subject to approval.	No	No	No EWMs
USA: Alaska	Prior appropriation (Alaska Statutes)	None ¹³⁶	Legal protection of instream flows ¹³⁷	No although state funds used to protect instream flows with stream gauging ¹³⁸
USA: Arkansas	Common law riparian rights (although 'excess' surface water can be transferred to non-riparians) ¹³⁹	None	Minimum flows protected when issuing permits ¹⁴⁰	No EWMs
USA: Hawaii	Transfer enabled	None	Instream flows are	No EWMs

Jurisdiction	Modern water rights ⁸⁷	Water markets	Environmental water rights	Environmental Water Manager
	(Hawaii Revised Statutes Annotated § 174C-59)		protected ¹⁴¹	
USA: Indiana	Beneficial use provisions; sale of water by Natural Resources Commission	No water markets ¹⁴²	No environmental flow rights, although new water permits assessed for streamflow effects ¹⁴³	No EWMs
USA: Kansas	Water is a 'real property right' but attached to land (Water Appropriation Act 1945)	Minimal water trading ¹⁴⁴	Legal protection of instream flows ¹⁴⁵	No EWMs
USA: Kentucky	Permits required for transfer (Kentucky Revised Statutes §§ 151.150, 140)	None	Normal flows protected by statute ¹⁴⁶	No EWMs
USA: Nebraska	Prior appropriation with some capacity to transfer intra-basin water rights (Nebraska Revised Statutes §§ 46-233, 241, 242, 294)	Minimal water trading ¹⁴⁷	Legal protection of instream flows ¹⁴⁸	No EWMs
USA: Oklahoma	Legislation silent on transfer	Minimal water trading ¹⁴⁹	None as yet ¹⁵⁰	No EWMs
USA: Wyoming	Reservoir rights transferable (Wyoming Annotated Statutes §§ 41-3-101)	Reported water transactions indicate a water market but not very active ¹⁵¹	Legal protection of instream flows ¹⁵²	No EWMs – there is capacity to purchase rights (although no capacity to lease) but no acquisitions as yet ¹⁵³

As noted above, all table references are endnotes, beginning on page 289.

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II. APPENDIX B: INTERVIEWEES AND INTERVIEW DOCUMENTS

All interviewees, including their organisation, role and interview code, are listed in Table 19.

Table 19 Interviewees (organisation, role and interview code)

Organization	Role	Code
Victorian Environmental Water Holder	Commissioner	VEWH 1
	Executive Officer	VEWH 2
	Operations Manager	VEWH 3
Commonwealth Environmental Water Holder	Strategic Policy Manager	CEWO 1
	Operations Manager	CEWO 2
SA DEWNR	Senior Policy Officer	SA DEWNR
Healthy Rivers Australia	CEO	HRA
New South Wales OEH	Regional Operations, South West Regional Manager	NSW OEH
National Fish and Wildlife Foundation	Director, Western Water Program	NFWF
California Department of Water Resources	Chief Deputy Director	Cal DWR
American Rivers/Stanford Water in the West	Professor	AR
Oregon Freshwater Trust	Flow Restoration Director Implementation Officer	FWT
Washington Water Trust	Executive Director	WWT
Washington State Department of Ecology	Trust Water Program Director	WDE 1
	Trust Water Program Director Manager, Program Development Implementation Officer	WDE 2
Trout Unlimited Montana	Director, Montana Water Project	TUM
Clark Fork Coalition	Legal Director	CFC
Colorado Water Trust	Executive Director	CWT
Colorado Water Conservation Board	Chief, Stream and Lake Protection Section	CWCB
Deschutes River Conservancy	Program Director	DRC

The following is a copy of the text of the three documents provided to the interviewees:

- 1) A schedule of the interview questions;
- 2) A plain language statement about the project; and
- 3) A consent form (which was signed and returned to the author).

A. *Schedule of Interview Questions*

1. *Background for participants*

This project is about the institutional response to the use of cap-and-trade schemes in managing natural resources like water. In particular, the project is focused on the environmental water management organizations that have emerged in response to the opportunities of water markets. One such organization in Australia is a statutory environmental corporation, the Victorian Environmental Water Holder (VEWH). This project aims to use the VEWL as a case study, and in particular, to:

- (1) compare the operations of the VEWL to other organizational forms responsible for environmental water management in a range of water law jurisdictions; and
- (2) identify and discuss the consequences for environmental water management that stem from using a corporate form to manage environmental water.

This schedule sets out a broad range of questions which may be asked of all interviewees. This project is being conducted in two stages: an initial scoping stage with a small number of interviews, followed by a larger second stage of data collection. The first stage of data collection is complete, and this interview forms part of the second stage, with a wider range of participants and environmental water management organizations.

Interview questions are designed as open-ended questions, allowing participants to explore more about the issues being questioned. They may be reduced in number or tailored to the individual participant, depending on their responses.

The participants will be interviewed in a semi-structured approach, where the researcher will use an interview guide listing a set of questions to be explored but at the same time will allow spontaneous generation of questions in the natural flow of interview.

At the commencement of each interview, participants will be reminded not to disclose any information that may be subject to legal professional privilege or that was given to them in confidence.

2. *Interview Questions*

Details about the participant (all participants)

1. What is your current role in environmental water management?
2. How long have you been in this field?
3. Have you worked in any other water industry roles? Can you tell me about these?

Basis for their knowledge of the institutions responsible for managing environmental water (all participants)

1. Can you give me a quick overview of environmental water management in your jurisdiction? (optional prompt: laws, policies, organizations?)
2. Who are the most influential organizations affecting environmental water management in your location?

Environmental water management questions

1. Can you tell me a bit about the origins and objectives of your organization? Why was it created? What are its objectives?
2. Can you talk me through the environmental water management activities your organization engages in? Is there an example you can tell me about?
3. Can you trade your water? Do you engage in water trading? Can you give me an example?
4. How does your organization make decisions about which environmental water activity to undertake? Who is involved in those decisions? Who has the final say on what you do with environmental water?
5. What sort of monitoring and reporting activities does your organization engage in? How do you report on the outcomes of environmental watering activities? Who do you report to?

Note: where the interviewee is from an organization that doesn't directly participate in environmental water management, but coordinates activities of a number of different environmental water management organizations, these questions will be modified to focus on their relationship with these other organizations.

Independence questions

1. What are the sources of funding for your environmental watering activities? Do you receive government funding? What is your relationship to government in your jurisdiction (local/state/federal)?
2. Who do you think holds you accountable? What do you think matters most to them?

Organizational form questions

1. How would you describe your organization? (optional prompt: you are a [insert specific organizational form, eg, NGO, corporation, state agency, etc])
2. Do you think your organizational form matters? Can you talk me through an example where you think it made a difference to your operations?
3. Do you feel that you provide a form of representation for your local waterways? In what forum? Can you give me an example?

B. *Plain Language Statement for Interviews (sample text)*

CORPORATISATION OF ENVIRONMENTAL WATER MANAGEMENT: HOW DOES THE ORGANIZATIONAL FORM AFFECT THE OPERATIONS OF ENVIRONMENTAL WATER MANAGERS?

We would like to invite you to participate in the above research project, which is conducted by Erin O'Donnell (PhD student) of the Melbourne Law School at the University of Melbourne. The research will be supervised by a team comprising Professor Lee Godden, Professor Sundhya Pahuja and Professor John Freebairn of the University of Melbourne.

You have been chosen based on your role in managing environmental water in [*insert relevant organisation*]. This project will form part of Erin's thesis, and has been approved by the University of Melbourne's Human Research Ethics Committee.

This project is about the institutional response to the use of cap-and-trade schemes in managing natural resources like water. In particular, the project is focused on the environmental water management organizations that have emerged in response to the opportunities of water markets. One such organization in Australia is a statutory environmental corporation, the Victorian Environmental Water Holder (VEWH). This project aims to use the VEWB as a case study, and in particular, to:

- 1) compare the operations of the VEWB to other organizational forms responsible for environmental water management in a range of water law jurisdictions; and
- 2) identify and discuss the consequences for environmental water management that stem from using a corporate form to manage environmental water.

This project is being conducted in two stages: an initial scoping stage with a small number of interviews, followed by a larger second stage of data collection. The first stage of data collection is complete, and this interview forms part of the second stage.

The intent of these interviews is to assist Erin to understand how different environmental water managers operate, and to help her to untangle the effects of organizational form from other factors influencing environmental water management.

Should you agree to participate, you would be interviewed at a place and time that suits you. Erin will record the interview, and will also take written notes during the interview and send you an email summary of these notes to confirm that her record is accurate, and can be quoted from in her research. The confirmed summary will be the data retained on record and used in her research. Please note that you may choose to keep yourself anonymous, even though the information you provide may be used in her research (see below).

We estimate that the time commitment required for the interview would not exceed 1 hour.

If you decide at any point that you don't want to continue with the interview, please say so – the interview will stop and any information provided up to that point will be destroyed if you wish.

In regards to the issue of identity in Erin's thesis, you have 3 options:

- 1) You can be completely anonymous (although your organization will be listed in the methods section); or
- 2) You can be identified in the methods section as an interviewee, but without being linked to any statements made; or
- 3) You can be identified as the source of particular information.

However, if you choose option 1, it is possible that someone may still be able to identify you as the number of people we seek to interview from each organization is very small.

You may request for any information you provide to be kept confidential, in which case the researcher will not publish or disclose the information to third parties, subject to any legal requirements. Once the thesis has been completed, a brief summary of the findings will be available to you. The data will be kept securely by researcher for five years from the date of publication, before being destroyed.

Please be advised that your participation in this study is completely voluntary. Should you wish to withdraw at any stage, or to withdraw any unprocessed data you have supplied, you are free to do so and any information you have provided will not be used in the thesis.

If you would like to participate, please indicate that you have read and understood this information by signing the accompanying consent form. The researcher will then arrange a mutually convenient time for you to hold an interview.

Should you have any concern or would like further information about the purpose of and arrangement for interviews, or anything else about the project, please do not hesitate to contact us:

Erin O'Donnell (research student)

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Postal address: Melbourne Law School, The University of Melbourne, Victoria 3010 Australia

Professor John Freebairn (co-supervisor)

Phone: +61 38344 6414

Email: j.freebairn@unimelb.edu.au

Postal address: Department of Economics and Commerce, The University of Melbourne, Victoria 3010 Australia

Should you have any queries about the conduct of the project, you are welcome to contact the Executive Officer, Human Research Ethics, The University of Melbourne, Victoria 3010, or phone 03 8344 2073 or fax 03 9347 6739.

C. *Consent Form for Interviews (sample text)*

Project Title:

CORPORATISATION OF ENVIRONMENTAL WATER MANAGEMENT: HOW DOES THE ORGANIZATIONAL FORM AFFECT THE OPERATIONS OF ENVIRONMENTAL WATER MANAGERS?

Name of Participant:

Name of investigators: Erin O'Donnell (research student), Professor Lee Godden, Professor Sundhya Pahuja and Professor John Freebairn of the University of Melbourne.

This project is about the institutional response to the use of cap-and-trade schemes in managing natural resources like water. In particular, the project is focused on the environmental water management organizations that have emerged in response to the opportunities of water markets. One such organization in Australia is a statutory environmental corporation, the Victorian Environmental Water Holder (VEWH). This project aims to use the VEW as a case study, and in particular, to:

- 1) compare the operations of the VEW as to other organizational forms responsible for environmental water management in a range of water law jurisdictions; and
- 2) identify and discuss the consequences for environmental water management that stem from using a corporate form to manage environmental water.

I consent to participate in this project, now that the details of the project have been explained to me, and I have been given a written plain language statement to keep.

I understand that after I sign and return this consent form it will be kept by the researcher.

I understand that my participation will involve an interview and I agree that the researcher may use the results as described in the plain language statement.

I acknowledge that:

- a) the possible effects of participating in the interview have been explained to my satisfaction;
- b) I have been informed that my involvement in the interview is voluntary;
- c) I have been informed that I am free to withdraw from the project at any time without explanation or prejudice and to withdraw any unprocessed data I have provided;
- d) the project is for research purposes;
- e) I acknowledge that my organization will be identified;
- f) I have been informed that if I choose to keep my identity anonymous it is possible that someone may still be able to identify me as the number of people being interviewed from my organization is very small;
- g) I can choose whether to be referred to in any publications arising from the research, and if so, I can choose to be referred to by a pseudonym or without personal attribution;
- h) I have been informed that any confidential information that I provide will not be disclosed, subject to any legal duty of disclosure;
- i) I have been informed that with my consent the interview will be recorded, written notes of the interview will be taken and that I will have the capacity to review and confirm a summary of these notes via email following the interview;
- j) I have been informed that a summary of the research will be provided to me and I can request a copy of the final thesis.

Signature _____

(Participant)

Date