



Indigenous water requirements in the Martuwarra/Fitzroy River catchment, Western Australia

Final report

Sarah Laborde and Sue Jackson

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Contents

Acronyms.....	iii
Acknowledgements	iv
Executive summary	1
1. Introduction.....	4
1.1 The Martuwarra/Fitzroy River catchment.....	4
1.2 Project overview	5
1.2.1 Initial project objectives	5
1.2.2 Project team and approach	6
1.3 Literature review and initial conceptual model.....	7
1.3.1 ‘Standards’ in Indigenous water governance – international and domestic	9
1.3.2 Important specificities of the Martuwarra/Fitzroy River catchment.....	12
2. Methodology.....	14
2.1 Participatory action research.....	14
3. Outputs.....	16
3.1 Summary	16
3.2 Major outputs.....	16
3.2.1 Nyikina calendar and hydro-ecological framework	16
3.2.2 Veins of the Country film with Mervyn Street.....	19
3.2.3 ‘Living waters’ model	19
4. Recommendations to water planners	23
4.1 Summary of key water governance issues	23
4.2 Water-planning recommendations for the Martuwarra/Fitzroy River catchment	26
5. Ongoing work and legacy of the project	32
6. Conclusions.....	33
References	35

List of figures

Figure 1.1. Map of the Martuwarra/Fitzroy River catchment showing Native Title boundaries and corresponding language groups. 5

Figure 1.2. Initial hydro-socio-ecological model of the Martuwarra/ Fitzroy River catchment (from Douglas et al. 2019)..... 8

Figure 2.1. Walking on Country (Likil) with Josephine Forrest. Photo: Sarah Laborde..... 15

Figure 3.1. A Nyikina seasonal calendar. Copyright: Walalakoo Aboriginal Corporation. 17

Figure 3.2. A Nyikina hydro-ecological framework. Copyright: Walalakoo Aboriginal Corporation. 18

Figure 3.3. Community mural being painted in Jarlmadangah to celebrate the Nyikina seasonal calendar. Photo: Sarah Laborde. 19

Figure 3.4. Living waters model and modern water (water-resources) model..... 20

Figure 4.1. Diagram summarising key issues of water planning and management from the perspective of Traditional Owners in the Martuwarra/Fitzroy River catchment. 24

Figure 4.2. Three approaches to cultural flows (Figure 9.1 from Nelson et al.2018). 26

Acronyms

DWER..... Department of Water and Environmental Regulation (Western Australia)

NAERH..... Northern Australia Environmental Resources Hub

NESP National Environmental Science Program

NWC National Water Commission

NWI..... National Water Initiative

PBC Prescribed Body Corporate

TO..... Traditional Owner

UNDRIP United Nations Declaration for the Rights of Indigenous Peoples

WA..... Western Australia

Acknowledgements

We acknowledge the unceded Aboriginal lands on which we have assembled this report. The work that underpins this report was produced in collaboration with Traditional Owners of the Martuwarra/Fitzroy River catchment, which includes Bunuba, Gooniyandi, Jaru, Kija, Kurungal, Nyikina, Mangala, Warrwa, Wilinggin, Yi-Martuwarra Ngurrara and Yungngora Peoples. We acknowledge their elders.

Each Traditional Owner group holds the cultural authority to speak for water within their Country. We acknowledge the ancestors who have passed down their knowledge, and the Traditional Owners today who have chosen to contribute it towards this project, in a spirit of generosity and willingness to share knowledge.

We also acknowledge the support of the Chief Executive Officers and Directors of the catchment's Prescribed Bodies Corporate: Bunuba Dawangarri Aboriginal Corporation, Gooniyandi Aboriginal Corporation, TiyaTiya Aboriginal Corporation, Walalakoo Aboriginal Corporation, Wilinggin Aboriginal Corporation, Yanunijarra Aboriginal Corporation and Yungngora Aboriginal Corporation. We are also grateful to the Kimberley Land Council for logistical assistance and the support from Karen Dayman.

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Executive summary

This is a report of research results for Project 1.5 of the National Environmental Science Program's Northern Australia Environmental Resources (NAER) Hub: [Indigenous water requirements in the Martuwarra/Fitzroy catchment](#). The project was conducted by Professor Sue Jackson and Dr Sarah Laborde from Griffith University's Australian Rivers Institute, in close collaboration with Nyikina, Gooniyandi, Walmajarri, Bunuba, Ngarinyin and Kija Traditional Owners from the Martuwarra/Fitzroy River catchment.

The report summarises our research approach, methodology and results. We refer the reader to published project outputs for more detailed information. The report makes recommendations for protecting the relationships that Traditional Owners maintain with the Martuwarra/Fitzroy River and connected waters. It also seeks to improve the way governments make decisions about the river and other waters in the catchment. Water management is primarily the responsibility of the Western Australian Government, although we note that the federal government also has a decision-making role for the Martuwarra/Fitzroy River under the *Environment Protection and Biodiversity Conservation Act 1999*, which recognises the cultural values associated with water flows in the catchment as part of the West Kimberley National Heritage site.

The principal audience for this report is the funding body: the Australian Department of Agriculture, Water and the Environment. This report also serves as a record of the work achieved during the project for the benefit of our partners. Finally, the recommendations in this report were written for the consideration and use of water planners and managers at the Western Australian Department of Water and Environmental Regulation.

The report is based on several important premises:

- 1) Participation in this project by Traditional Owners does not imply that any Traditional Owner or representative body has consented to the imposition of the settler-colonial water governance regime over their Country.
- 2) The notion of 'water requirement' in the title of this project signals a much broader focus than the determination of a quantitative, volumetric water requirement of conventional environmental flow processes (see Finn & Jackson 2011). People have a material requirement for water but also for authority and voice in matters affecting water (Zwarteveen et al. 2017). Therefore, the term 'requirement' as we use it throughout this document includes socio-economic and political requirements that serve the broader goals of self-determination, equity and sustainability. We also include the need for recognition and respect for the distinct ways of life, expertise and cultural practices of Traditional Owners as a requirement of water planning.
- 3) While this research relied on collaborative, recursive learning with Traditional Owners of the Martuwarra/Fitzroy River catchment and we are confident of the integrity of our findings, this report does not speak for Traditional Owners or their representative bodies. Similar to Traditional Owners participating in government consultations while still advocating for the sovereignty of their own decision-making processes in their Country, our Aboriginal collaborators maintain the right to speak for their own rights and interests.

- 4) Some Traditional Owners have had significant input into the research underpinning this document, either directly or indirectly. Our collaborators are acknowledged by name in individual outputs. In this version of the report, however, sources of quotes are anonymous.
- 5) We refer to the river as 'Martuwarra/Fitzroy River'. *Martuwarra* is the Nyikina name for the river and it has also been used in Walmajarri language. It has become an accepted name for the whole river since the creation of the Martuwarra Fitzroy River Council in 2018. However, we note that throughout the catchment there are many distinct language names for the river and its tributaries. Our use of 'Martuwarra' for consistency with recent Aboriginal water governance documents is not intended to favour Nyikina language or disregard Warrwa, Bunuba, Gooniyandi, Kija, Jaru and Ngarinyin languages and knowledges of the waterways in their Countries, including the main river and its tributaries.

Key insights from the research are as follows:

- 1) Current policy frameworks at international, national and regional levels all point to a need for reform to better acknowledge expertise, custodianship and decision-making power of Traditional Owners for the waters in their Country, as well as the need for changes to the laws and policies that distribute water and the benefits that flow from its use. This includes national water policy as well as the National Agreement on Closing the Gap (Coalition of Aboriginal and Torres Strait Islander Peak Organisations [CATSIPO] & Australian Governments 2020), of which Western Australia is a signatory.
- 2) Traditional Owner organisations contest the status quo of water politics in Australia at different levels, depending on their degree of acceptance of existing government policy frameworks. They agree, however, that jurisdiction over water is a fundamental issue. Indigenous communities within Australia, including those of the Kimberley, have told many government processes and those interested in their forms of water governance that they look to their law and custom as a source of legitimacy for making decisions about water.
- 3) In the Kimberley region, the concept of 'living waters' is key to Traditional Owners' relationships with their waters and, we argue, to possible legislative reforms. 'Living waters' clarifies why the socio-economic, cultural and environmental objectives of water governance must be considered together. It follows that the ways in which Indigenous peoples' water interests are defined as 'cultural' but rarely 'economic', or as both but compartmentalised, is inadequate. Traditional Owners require mechanisms to control access to all forms of water in their Country, no matter its designated use under contemporary allocation and management regimes.
- 4) The maintenance of custodial relationships is key to meeting Traditional Owners' water requirements. The quality of relationships with rivers and waterways is best judged by Traditional Owners who enact their own values when taking responsibility for Country. There is no way to define, assess or monitor the quality of these relationships without the direct involvement of Traditional Owners. The means by which Traditional Owners undertake independent or collaborative management needs to be formalised and resourced.

- 5) Traditional Owners support economic options that rely on water to lift the quality of life in towns and communities of the Martuwarra/Fitzroy valley. However, they require control over the kind of development occurring on their Country so that 1) the benefits of this development are genuinely reflected in improvements in quality of life for Aboriginal people in the catchment, and 2) the integrity of Traditional Owners' relationship to Country is maintained, as this is at the core of Aboriginal health and well-being frameworks. This means that the health of the Country is preserved, Aboriginal political and cultural institutions are strong and active, and the presence of custodians on Country is supported and linked with environmental monitoring processes.
- 6) Water-management indicators and targets should span multiple policy sectors and focus not only on access to water but also on the improvement of the quality of life for Aboriginal people in the catchment. Experience in other parts of Australia shows that efforts to make water-resource development more equitable will need to go beyond recognising a right to use water, and address the many barriers Aboriginal people face. Water rights are considered a means to exercising greater influence over water use and management.

1. Introduction

1.1 The Martuwarra/Fitzroy River catchment

The Martuwarra/Fitzroy River catchment (Figure 1.1) has a population of ~7,000 people, the majority of whom are Aboriginal. The river crosses seven ethno-linguistic areas with a complex array of cultural and political affiliations that span tens of thousands of years. In the last hundred years, most of the catchment's settlements have been built near the Martuwarra/Fitzroy River, which is a highly significant focal point for its communities. Water in rivers, floodplain wetlands, springs and other water bodies, including aquifers, are of great importance to Aboriginal people of the catchment who hold an extensive body of knowledge and assert rights and responsibilities to land and water under customary law. This knowledge and its connection to cultural, religious and political practices has been recognised by National Heritage listing in 2011: the river, its tributaries, floodplains and waterholes are of outstanding heritage value for their 'exceptional ability to convey the diversity of the Rainbow Serpent tradition within a single freshwater hydrological system' (Commonwealth of Australia 2011).

The climate in the catchment may be described as semi-arid and monsoonal. The hot season, wet season and cold season are associated with an annual cycle of flow regimes in the river: from low water flows (at their lowest, the river is a series of disconnected pools), to overbank flows that soak into the floodplains, and within-bank flows that recede to low flows. The flow of the Martuwarra/Fitzroy River has not been substantially altered since colonial settlement of the region in the mid-1800s. A large barrage was built for a centralised irrigation scheme in 1957, but this was abandoned in the 1980s. The barrage remains in place and the adjacent pastoral station has a current licence to extract water for irrigation.

The federal government announced in 2014 an aim to double the agricultural output of northern Australia over the next 20 years (Commonwealth of Australia 2015), and a recent assessment identified large dams, off-channel storage of floodwaters and pumping from groundwater aquifers as the most cost-effective options to provide reliable water for agriculture (Petheram et al. 2018). The Western Australian state government has excluded the possibility of large dams on the Martuwarra/Fitzroy River and committed to developing a water allocation plan by 2021 to decide on volumes of water to be allocated annually, while protecting the river's values. The options put forth by the Western Australian Government include both surface water extraction from the river, and groundwater extraction (Government of Western Australia 2020).

In response to this increased interest in water-resource development, Aboriginal representatives issued the Fitzroy River Declaration in 2016, which outlined their values and aspirations for future management of the river and development in the catchment. In 2018, a body representing almost all Native Title-holding groups, the Martuwarra Fitzroy River Council, was formed to uphold the Declaration in the context of water planning and management processes. Since then, Prescribed Bodies Corporate (PBCs) of the catchment have engaged in water-planning conversations with the Western Australian Government independently, and collectively via the Martuwarra Fitzroy River Council and the Kimberley Land Council.



Figure 1.1. Map of the Martuwarra/Fitzroy River catchment showing Native Title boundaries and corresponding language groups.

1.2 Project overview

1.2.1 Initial project objectives

The aim of this project was described in the project proposal (2016) as follows:

[This project will] work closely with Indigenous communities to identify customary uses of water and waterways, reveal links between Indigenous values, practices and water regimes, and elicit knowledge as well as objectives for the future management of land, water and other natural resources. [The project] will develop methods for the determination of Indigenous water requirements in ways that integrate with regional water and catchment management plans and Indigenous NRM [natural resource management] activities. Results will contribute to environmental management, improve water planning processes and enhance Indigenous capacity to influence allocation decisions, water policy and regional development solutions.

The approach put forward in the initial proposal was to develop a methodology based on the framework by Finn and Jackson (2011), which is an adaptation of environmental flow approaches to water management, with an emphasis on the inclusion of Aboriginal custodians' objectives. Environmental flow (e-flow) regimes, according to the Brisbane

Declaration (2017), 'describe the volumes, timing, and quality of surface and ground water necessary to sustain river, wetland and estuarine ecosystems and the human cultures, livelihoods and well-being that depend on these ecosystems' (Arthington et al. 2018). Finn and Jackson (2011) highlighted the need to incorporate three elements into e-flow assessment processes, which were a starting point for this project:

- 1) explicit recognition of the species important to Indigenous people
- 2) management objectives that may be held by Indigenous people and that are different to non-Indigenous objectives for water planning
- 3) the significance of people–place relationships.

The emphasis of the initial proposal was on quantifiable water requirements, with an additional objective to assess governance requirements. The project set out to 'identify strategies for the protection of environmental and cultural values, including water governance arrangements that enable direct Indigenous participation in the management of land and water' (National Environmental Science Program [NESP] Project 1.5 proposal, 2016).

Through our commitment to adaptive, collaborative research and problem-framing with Traditional Owners of the Martuwarra/Fitzroy River catchment, the project's focus on the governance aspect – relative to determining material requirements – increased as the project evolved.

1.2.2 Project team and approach

The researchers were Professor Sue Jackson (project lead) and Dr Sarah Laborde (project coordination and field research).

Our partners were Walalakoo Aboriginal Corporation, Yanunijarra Aboriginal Corporation, Gooniyandi Aboriginal Corporation, Wilinggin Aboriginal Corporation, TiyaTiya Aboriginal Corporation, Yungngora Aboriginal Corporation, Bunuba Dawangarri Aboriginal Corporation, Martuwarra Fitzroy River Council, Kimberley Land Council, Kija Traditional Owners.

Note that these are the organisations that have signed a shared research agreement with our project, plus some individual Traditional Owners who worked outside of a PBC but with consent forms (e.g. Kija Traditional Owners). The degree of collaboration differed across organisations.

Our approach reflected a commitment to:

- 1) **Free, prior and informed consent.** We met with PBCs to identify which Traditional Owners we should work with, we worked with consent forms with each individual Traditional Owner, we adapted our methodologies based on input from our collaborators and we reported regularly to PBCs.
- 2) **Protection of Traditional Owners' intellectual property.** We made sure that no data or information was shared without approval from relevant Traditional Owners and PBC directors, and we adapted our research agreements to grant full copyright of relevant project outputs to our partner Traditional Owner organisations (e.g. full copyright of Nyikina calendar to Walalakoo Aboriginal Corporation).
- 3) **The purposeful pursuit of research outcomes responding to needs identified by Aboriginal people.** Our chosen methodology was participatory action research, and we adapted and co-designed research questions, methodologies and outputs with our collaborative partners.

1.3 Literature review and initial conceptual model

We refer the reader to an extensive literature review on environmental flows and on the Martuwarra/Fitzroy context that was included in Douglas et al. (2019).

This literature review, which included publications on other tropical river catchments in northern Australia, led to the hydro-socio-ecological model below (Figure 1.2) representing ecological values of the river and a wider set of values held by Aboriginal custodians. This initial conceptual model was published in Douglas et al. (2019) in collaboration with the NESP Project 1.3.3 team (fish and riparian vegetation ecology). It demonstrates the importance of hydrological connectivity for maintaining the values associated with the river Country. This publication was used by the Department of Water and Environmental Regulation (DWER) as a basis for their discussion paper for the Fitzroy water allocation plan (Government of Western Australia 2020).

Through this project, we then sought to produce an updated version of this model in collaboration with Traditional Owners of the Martuwarra/Fitzroy River catchment. This led to the living waters model, detailed in Laborde and Jackson (in review) and presented in Section 3 of this report (Outputs).

We also produced literature reviews on Indigenous water governance, including international framing documents. We refer the reader to the Introduction section in Milgin et al. (2020) . A short summary of the literature relevant to Aboriginal water governance in the Martuwarra/Fitzroy River catchment and beyond is also included below and in a paper currently under review (Laborde and Jackson).

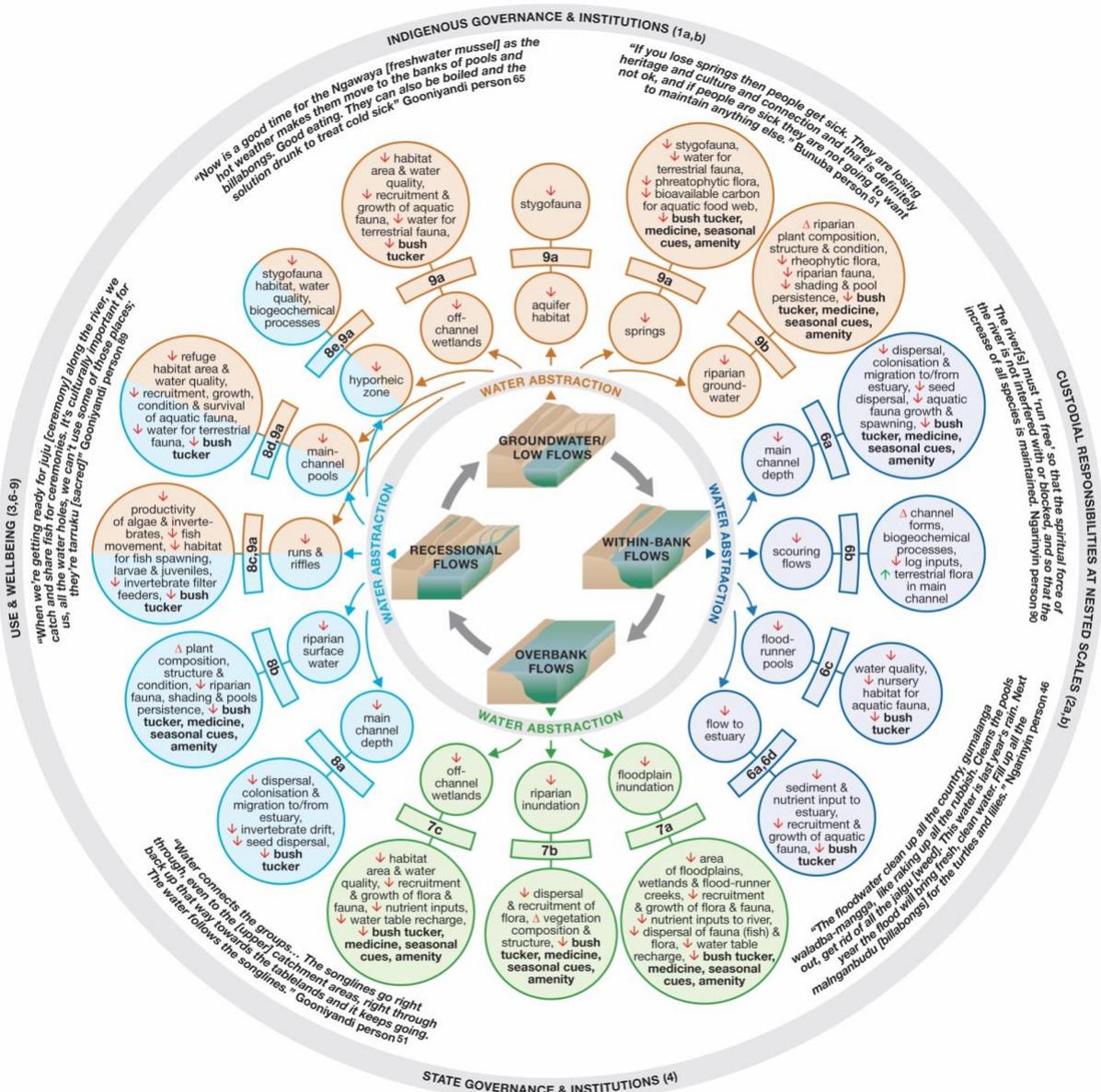


Figure 1.2. Initial hydro-socio-ecological model of the Martuwarra/ Fitzroy River catchment (from Douglas et al. 2019).

1.3.1 'Standards' in Indigenous water governance – international and domestic

There are legal and policy frameworks at three geographical levels – international, national and regional – that provide a platform with which to comprehensively examine Traditional Owners' relationships to water beyond the more limited procedural framing of consultation over licensing and allocation decisions. Some of these, summarised below, can potentially advance Indigenous water governance¹ in Australia and beyond.

International

The United Nations Declaration for the Rights of Indigenous Peoples (UNDRIP²) implies substantial changes in water-related decision-making, particularly, but not limited to, natural resource development (United Nations General Assembly 2007). Key articles of UNDRIP 'articulate the rights Indigenous peoples have related to consultation both prior to actions being taken, as well as part of a redress strategy to address historic and ongoing injustices within states' (Askew et al. 2017). While UNDRIP is not binding for signatory governments (including Australia), it attends to matters of jurisdiction and political authority and gives them normative weight, as Askew et al. observe in their study for Canadian water governance:

Articles 18 and 27's affirmation of the need for recognition of and respect for Indigenous legal orders and water governance ... holds promise as a focal point for the revitalization of Indigenous law. (p.5)

A host of UNDRIP provisions come into play when considering water's connections to Indigenous Peoples' socio-economic self-determination (Robison et al. 2018). Two UNDRIP provisions touching on health and economic development, respectively, are initially notable. Article 24 addresses the former. It articulates for Indigenous Peoples 'an equal right to the enjoyment of the highest attainable standard of physical and mental health', obligating nation-states to take 'necessary steps with a view to achieving progressively the full realization of this right'. Article 26 provides that Indigenous Peoples have the right to own, use and develop 'lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired'. Nation-states are obliged to 'give legal recognition and protection to these lands, territories and resources'. The economic orientation of this text mirrors Article 32, which articulates Indigenous Peoples' rights 'to determine and develop priorities and strategies for the development or use of their lands or territories and other resources'.

Australian standards and policy frameworks

Since colonisation, state systems of water governance have pursued priorities and needs of the non-Indigenous settler society, failing to recognise rights, interests and capacities of Aboriginal and Torres Strait Islander peoples (Robison et al. 2018). Water law and policy has only recently started to address exclusion of Indigenous Peoples from the institutions that

¹ Zwarteveen et al. (2017) define water governance as 'the practices of coordination and decision making between different actors around contested water distributions'.

² Water is only specifically mentioned in UNDRIP twice, but references to Indigenous 'lands, territories and resources' throughout the UNDRIP are interpreted to include water.

govern water use and management in Australia (Productivity Commission 2017, 2021; Hartwig et al. 2020; Tan & Jackson 2013; Taylor et al. 2016).

Recent national acknowledgement of Indigenous 'cultural values' in national water policy, the National Water Initiative (NWI), has seen the emergence of very limited, narrowly prescribed and externally defined spaces for Indigenous Peoples to influence decisions about water use and management (Jackson & Langton 2012; Macpherson 2019). Progress towards NWI goals relating to Indigenous access has been very slow, as noted previously by the National Water Commission (NWC), numerous Indigenous water alliances, and academics. Year after year, reviews and reports have recognised lack of progress in this area, noting that water plans are failing to achieve Indigenous peoples' objectives. The NWC report of 2011, for example, states that:

most jurisdictions have improved consultations with Indigenous communities in water planning and management, but have generally failed to incorporate effective strategies for achieving Indigenous social, spiritual and customary objectives in water plans.
(p.46)

In 2021, the Productivity Commission affirmed that little had changed since the early NWC reports, noting that Australian jurisdictions have been slow in implementing their NWI commitments relating to Indigenous interests in water (Productivity Commission 2021).

As policy-makers and water managers call for consultation, participation and multicultural inclusion, the state continues to maintain authority to govern and distribute water rather than exploring mechanisms that would increase Indigenous access to the economic and political benefits of controlling water.

Two national processes could potentially improve the distribution of water and, if reformed significantly, could increase the influence Indigenous Peoples have over decisions made about water. The Productivity Commission (2021) review of progress on national water reform argues for improvements in this area. It recommends that the 'focus on Traditional Owners' interests in water should be elevated in a renewed NWI through a dedicated objective and new element, and inclusion of Aboriginal and Torres Strait Islander peoples' interests in the overarching goal' (p. 124). It also acknowledged that 'much more needs to be done to include Aboriginal and Torres Strait Islander people's interests in water in jurisdictional planning and the management of water' (p. 125). It links water policy to Australian governments' commitments under the National Agreement on Closing the Gap (2020), discussed below.

In 2020, Australian governments committed to developing their first-ever set of national targets to measure and presumably increase the amount of fresh water under Indigenous control or ownership (CATSIPO & Australian Governments 2020; Hartwig et al. 2021). Specifically, all Australian governments and the Coalition of Aboriginal and Torres Strait Islander Peak Organisations agreed that by July 2021, they would develop a target to 'measure progress towards securing Aboriginal and Torres Strait Islander interests in water bodies inland from the coastal zone under state and territory water rights regimes' (Outcome 15 of the National Agreement on Closing the Gap 2020).

Recognition that Indigenous rights to water should include commercial rights is found in other sources. According to O'Donnell (2013), advocacy by Indigenous organisations recognises the need for commercial opportunities, see for example policy statements such as the *Murray*

and Lower Darling Rivers Indigenous Nations Echuca Declaration (2007), the North Australian Indigenous Land and Sea Management Alliance (NAILSMA) *Mary River Statement* (2009a) and the NAILSMA *North Australian Indigenous Water Rights Policy Statement* (2009b). In a 2012 position statement released by the NWC, a link was made between water entitlements, economic development and national Indigenous policy:

that the '[a]llocation of water entitlements to Indigenous Australians to facilitate economic development should be explicitly considered as a strategy for contributing to the Australian Government's Closing the Gap agenda. (as cited in O'Donnell 2013, p.85)

O'Donnell (2013) interprets the NWI differently to government agencies, seeing scope for commercial access in s 25(ix).

In addition, the Australian Law Reform Commission (2015) handed down a report on reform to the *Native Title Act 1993* (Cth) in which it recommends changes that could see economic benefit accrue to Native Title holders from the use of natural resources, including water.

Western Australia and the Martuwarra/Fitzroy River

The Martuwarra/Fitzroy River is subject to Western Australian law and policy, including the *Rights in Water and Irrigation Act 1914* (Government of Western Australia 2013a). State heritage law and Native Title law are also highly relevant, since the catchment area is almost entirely covered by Native Title determinations and partially listed under the *Western Australian Aboriginal Heritage Act 1972* (Government of Western Australia 2013b).

Heritage law

In recognition of its biological richness, geology and cultural significance, a portion of the Martuwarra/Fitzroy River catchment was listed as a Heritage Site under the *Western Australian Aboriginal Heritage Act 1972* (Government of Western Australia 1972), and the lower reaches of the river and its floodplain corridor were entered onto the National Heritage List in 2011. This latter recognition and the protection it affords the river is derived from the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth of Australia 2016). The National Heritage listing describes the significance of the Martuwarra as a link between four unique freshwater-based cultural traditions in the region:

Martuwarra encompasses four contiguous and distinctive freshwater-based Aboriginal cultural domains, focused upon the tradition of the Rainbow Serpent, as exemplified by the religious traditions of Galaroo, Woonyoomboo-Yoongoorroonkoo, Wanjina-Wunggurr, and the jila-kalpurthu cultural systems. A song line known as Warloongarriy (Walungarri) serves to unite Aboriginal people and their Rainbow Serpent traditions along the Fitzroy River as part of one regional ritual complex, called Warloongarriy Law or 'River Law'. (Commonwealth of Australia 2011, p.168)

Other local standards include the Fitzroy Declaration and the Martuwarra Fitzroy River Council's conservation and management plan for the National Heritage Listed Fitzroy River Catchment Estate. The latter argues for Aboriginal cultural governance of the Martuwarra's waters:

The River's different flow regimes are key determinants of the ecological and cultural dynamics. All the water that makes up these flow phases is already fully 'allocated' to

traditional and environmental uses and values – in that it sustains people and places, plant, animal and fish populations and harvestable production, and community and spiritual connections. These flow driven processes are valued for their intrinsic existence and for their material and cultural production and connections. (RiverofLife et al. 2020, p.54)

Native Title

Following the Mabo High Court decision of 1992, Australian courts recognise that there were legal systems in place prior to European occupation, that Indigenous Peoples' rights to land survived colonisation and that a form of Native Title can exist where it has not been extinguished. The law of Native Title now commonly recognises Indigenous rights to take and use waters for personal, social, domestic and cultural purposes without the need for a licence, where evidence of traditional law and custom is proved (O'Bryan 2019; Tan & Jackson 2013).

The *Native Title Act 1993* (Commonwealth of Australia 2018) confirms the Crown's right to use and control the flow of water (including to issue licences to take and use water) and gives statutory protection to water licences granted to non-Aboriginal landholders prior to 1975, the date at which the Commonwealth's *Racial Discrimination Act 1975* (Commonwealth of Australia 2016) took effect. It also validates types of past actions that extinguished Native Title and provides compensation for such acts. According to O'Donnell (2013), compensation does not automatically follow the grant of a licence to take water. There are diverse Native Title rights to water within the catchment. According to current interpretations of Native Title law, however, these Native Title rights to take and use water generally do not allow commercial water use, nor confer exclusive ownership of water (O'Donnell 2013).

1.3.2 Important specificities of the Martuwarra/Fitzroy River catchment

International and national standards relating to Indigenous water rights provide important benchmarks for consideration in the Kimberley. However, the hydrological conditions of the region and local attachments to the river under customary law raise several issues that warrant consideration when negotiating locally relevant options.

- 1) Prevention, not restoration.** In the regions of Australia where there is a longer history of agricultural water use (irrigation and dams), water has been either fully or over-allocated and the rivers often severely degraded. In this context, representatives of First Nations have argued for cultural flows that seek restoration of Indigenous rights and environmental health with positive expectations of the ecological and socio-economic consequences of 're-watering' particular places (refer to Cultural Flows Planning and Research Committee 2017, relative to the Murray Darling Basin). In the Martuwarra/Fitzroy catchment, the river has a flow regime that has changed relatively little since colonisation. This sets a very different baseline in terms of engagement with the water allocation process (or re-allocation, which is the term preferred by the Martuwarra Fitzroy River Council).
- 2) Multiple scales of water interests, and disparity of water rights across the catchment.** In the Martuwarra/Fitzroy catchment, there are three clear levels of custodianship and responsibility for water that require consideration: 1) individual place-based relationships, with individuals and family groups having special connections to

water places, for example, through kinship; 2) Native Title areas, where PBCs and Indigenous rangers are responsible for the health of the river Country within their determined Native Title area (refer to Healthy Country Plans); and 3) basin-scale relationships, emphasised in the Fitzroy River Declaration, and reflected in the river's creation stories that transcend Native Title determination boundaries (such as Warloongarriy Law), the National Heritage listing for the river, and the creation of the Martuwarra Fitzroy River Council, which provides a platform for Traditional Owners to discuss water planning and governance issues common to all or many language groups. It is important for Traditional Owners to be engaged at these three levels, and mechanisms that support articulation across these scales need full government support. It is noted that the Martuwarra Fitzroy River Council was funded by the Western Australian Government for some period during the preparation of the water allocation plan.

- 3) Lack of clarity on proposed developments and monitoring processes.** It may not be possible for the Western Australian Government or other actors to gain free, prior and informed consent from Traditional Owners in water-planning consultation without clear understanding on the part of Traditional Owners of the hydrological, ecological and socio-economic consequences of proposed developments. The scope of development proposals that water licence applications anticipate, and their opportunities and impacts (including cumulative), are not known. The current planning process anticipates a moment at which Traditional Owners will be asked to approve a framework for water extraction without the information that will enable them to evaluate the benefits and costs of water extraction proposals. Current rules that restrict the release of monitoring information to the public and recent events that point to failings in regulating land and water use (e.g. land clearing at Yakka Munga, destruction of a cultural site at Junkan Gorge, over-allocation of Derby groundwater) have reduced the confidence some have in Western Australia's (WA's) environmental and protection regime.

2. Methodology

We produced a short methodology report in 2018, and our methodology is also described in two publications (Milgin et al. 2020; Laborde & Jackson in review). Below we provide a short summary of our approach, but for more detail, we refer the reader to the published paper.

Our key research questions were:

- 1) What are the existing Aboriginal customary uses of water and waterways, water-management principles and practices in the Martuwarra/Fitzroy River catchment? How are these linked to the river's flow regimes?
- 2) In what ways is water significant to Aboriginal peoples of the Martuwarra/Fitzroy River catchment? Can these relationships with water be addressed by a resource-management framework and, if not, what can we learn from the Martuwarra/Fitzroy Traditional Owners to suggest an alternative model?
- 3) What are the key issues relating to water governance for Traditional Owners of the Martuwarra/Fitzroy River catchment? What are the barriers and possible pathways to better recognition and consideration of these issues by current water governance and management authorities?

This research was highly participatory, founded on collaboration with Traditional Owners. Although we obtained ethics clearance from Griffith University prior to commencing research, we treated consent not simply as an outcome but as a process, to be maintained throughout the duration of the project. Principle 7 of the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) guidelines for ethical research (AIATSIS 2012) explains that consent obtained at an initial stage of the research must not be taken for granted at later stages. Implementing this principle required discussing the aim, objectives and methods of the project in PBC meetings and with relevant authorised knowledge holders at various stages, to make sure the project would continue to be seen as meaningful and our approach as appropriate.

2.1 Participatory action research

We used participatory action research. Action research is based on an iterative process, from the definition of the research questions to action, then feedback and reflection on action leading to a new cycle (Kemmis & McTaggart, 2005). There are several cycles in a single research project. This process allows the researchers to be responsive to dynamic contexts. Participatory action research means that, beyond the reflexive and adaptive qualities of the approach, it is also carried out together with non-academic co-researchers who participate in the definition of meaningful research questions and outcomes, the implementation of research actions, and their evaluation (Mackenzie et al. 2012). This approach is consistent with the recognition that the priorities and objectives of Aboriginal partners with regards to the project may evolve and should shape the research process.

Individual collaborations with Traditional Owners therefore led to several research methods, with different outputs. These methods included Aboriginal research methods such as on-Country observation, walking and feeling, led by our Aboriginal collaborators (e.g. Figure 2.1); audio-visual methods such as audio-visual recording (including of language) and production; and more standard social sciences methods such as semi-structured interviews and focus groups. For more detail, the reader is referred to project publications.



Figure 2.1. Walking on Country (Likil) with Josephine Forrest. Photo: Sarah Laborde.

3. Outputs

3.1 Summary

A number of outputs were pursued in this project, all providing a lens to look at social and cultural dimensions of water for Traditional Owners in the Martuwarra/Fitzroy River catchment. Because we co-designed research questions, methodologies and outputs with our collaborative partners, language-specific outputs were shaped by each collaborative partnership, including:

- an extensive ‘water’ section in the Ngarinyin Healthy Country Language Plan (upcoming)
- a contribution to the Culture and Language program of 6DBY community radio (Derby) with a Nyikina language edit around water
- a dataset from a mapping project with the Nyikina Mangala PBC and the Nulungu Research Institute, relating to significant river places that are part of the Nyikina creation story (data restricted to Walalakoo Aboriginal Corporation)
- a film about water flows and social connection in the catchment with Gooniyandi Traditional Owner Mervyn Street
- a Nyikina seasonal calendar and hydro-ecological framework, in the form of two posters and a mural
- a peer-reviewed article about Nyikina hydro-ecology and ethics (Milgin et al. 2020)
- an audio library of words, sentences and stories about water in Big Nyikina language.

We also produced material that was not specific to language groups or the Country of those language groups, looking at the water governance and management lessons from commonalities across Traditional Owners in the catchment, including:

- a *Conversation* article about the establishment of the Martuwarra Fitzroy River Council (Jackson and Laborde 2018)
- a ‘living waters’ framework explaining fundamental differences between Traditional Owners’ and government managers’ perspectives on water, to support better understanding and communication between them
- a peer-reviewed article about the living waters framework (Laborde & Jackson, in review with the journal *Local Environment*)
- a recommendations document for water planners and managers.

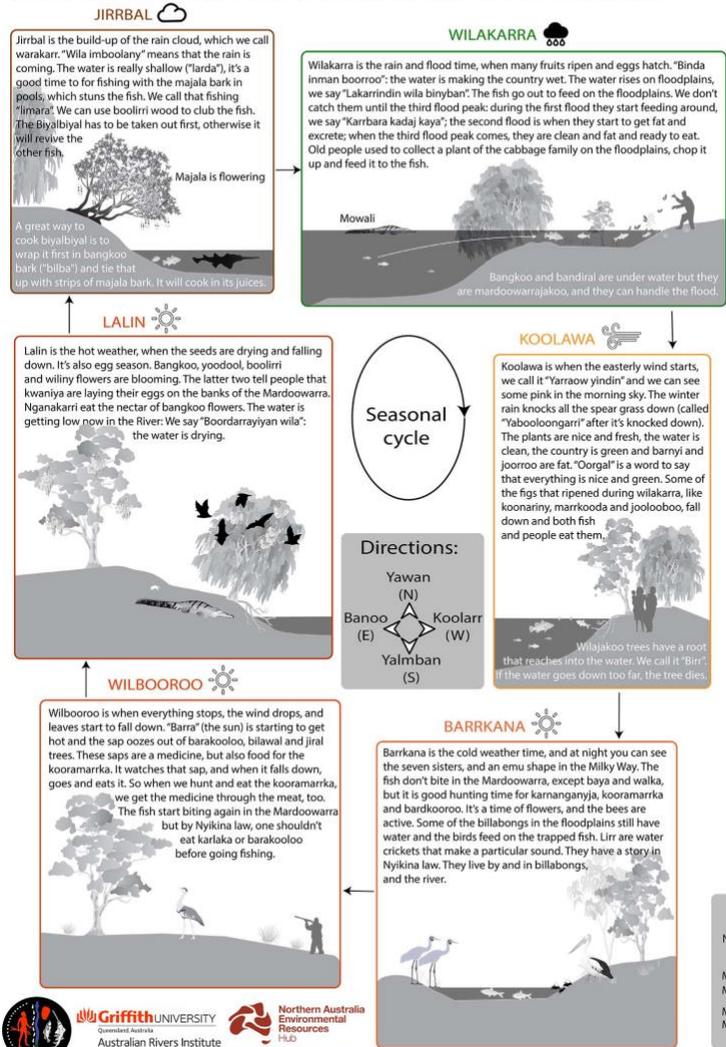
3.2 Major outputs

3.2.1 Nyikina calendar and hydro-ecological framework

The most extensive individual output emerged from collaboration with Walalakoo Aboriginal Corporation and Nyikina Traditional Owners, principally Annie Milgin, Linda Nardea and Hilda Gray. We produced an extensive Nyikina seasonal calendar and hydro-ecological framework (Figure 3.1 and Figure 3.2). More detail on our collaborative process and methodology are included in Milgin et al. 2020. These outputs are protected by copyright held by Walalakoo Aboriginal Corporation. The calendar was also celebrated via a community mural in Jarlmadangah, with joint funding from NESP and Kimberley Community Grants (Figure 3.3).

Birr Warloongaryi-yoonoo Nganka - Elements of Nyikina ecological science

There are three main Nyikina seasons: Wilakarra the rainy season, Barrkana the cold season and Lalin the hot season; and three transition seasons: Koolawa that announces the cold, Wilbooro the heat and Jirbal the rain. Everything is connected, from the sky to the ground, the water, plants, animals, people and ancestors. For each season below we show one story of such connections in Nyikina country. We include some Nyikina terms and expressions. The translations for animal and plant names can be found in the list on the right hand side of the poster, where they are organised according to the kind of habitat they belong with.



A Nyikina framework for habitats: belonging

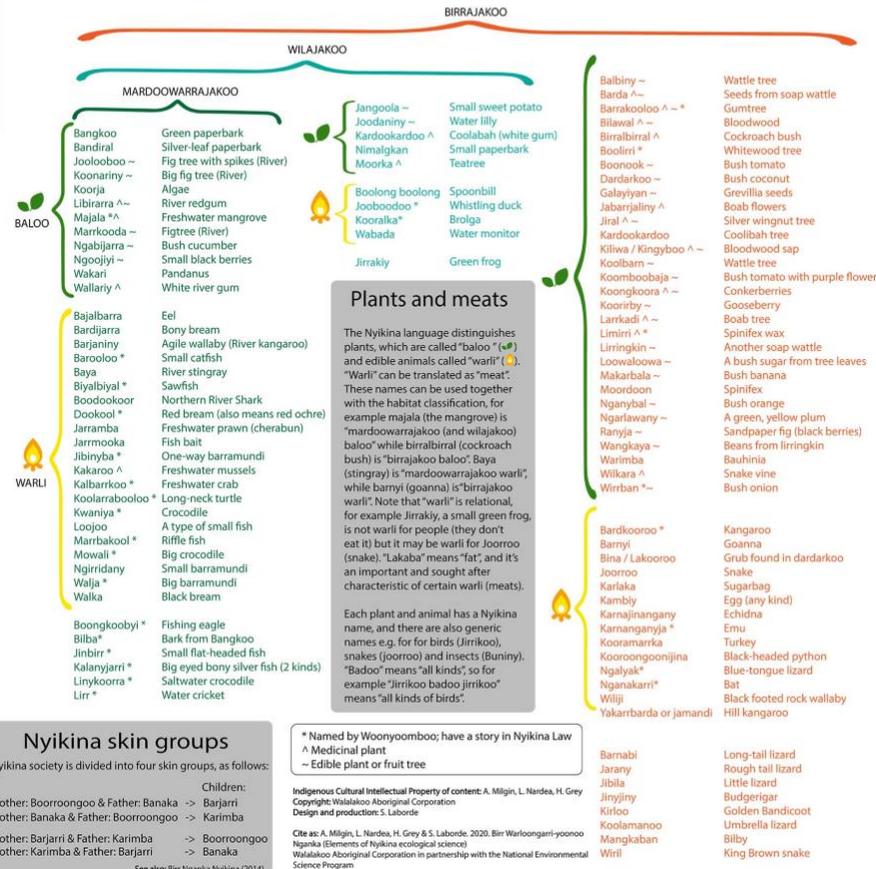
"Jako" is a suffix in Nyikina language that means "belonging to". We use it to talk about the habitats of plant and animal beings on the country, as follows:



Mardoowarra is the main River (its English name is Fitzroy River). Therefore to say that an animal or plant is mardoowarajakoo means that it belongs with the Mardoowarra, so its habitat is in or by the River. For example the biyalbiyal (sawfish) is mardoowarajakoo.

"Wila" means any kind of water. Wilajakoo is how we call plants and animals that belong with water. That includes those that are mardoowarajakoo but also those found near springs, or in billabongs and swamps (called "Marawan" in Nyikina); for example the joodaniny (lilies) are not mardoowarajakoo but they are wilajakoo.

Finally, "Birra" refers to the country in general, so birrajakoo means "that belongs to the country". This encompasses plants and animals that are only found in the dry and rocky country like larkadi the boob tree, but also those that can be found anywhere, like ngalyak the blue tongue lizard. Birra includes water places, and so if we talk about plants and animals of Nyikina Country in a general way, we will use "birrajakoo".



Nyikina skin groups
Nyikina society is divided into four skin groups, as follows:

Children:
Mother: Boorooongo & Father: Banaka -> Barjari
Mother: Banaka & Father: Boorooongo -> Karimba

Mother: Barjari & Father: Karimba -> Boorooongo
Mother: Karimba & Father: Barjari -> Banaka

Figure 3.2. A Nyikina hydro-ecological framework. Copyright: Walalakoo Aboriginal Corporation.



Figure 3.3. Community mural being painted in Jarlmadangah to celebrate the Nyikina seasonal calendar. Photo: Sarah Laborde.

3.2.2 Veins of the Country film with Mervyn Street

With Senior Gooniyandi Traditional Owner and artist Mervyn Street, we produced a short film about his understanding of the river and water flows, and their way of connecting the language groups of the catchment. Together with Mervyn, we presented the project and the film to the Australian Department of Prime Minister and Cabinet and Department of Agriculture, Water and the Environment in Canberra in February 2019. We were also invited in February 2019 to present it at the Art Gallery of Western Australia in Perth, the University of Sydney and the Australian Institute for Aboriginal and Torres Strait Islander Studies in Canberra. The film was shown as part of the 'Desert, River, Sea' exhibition at the Art Gallery of Western Australia, and triggered strategic conversations about the interface of water and art at the Annual Meeting of the Association of Northern, Kimberley and Arnhem Aboriginal Artists (2019). It received the environmental message prize at the Mud and Saltwater Film Festival in Broome (2019), was selected by the Environmental Film Festival Australia (2021), and shown at the Queensland Museum at an exhibition on art and science (2021). The film is owned and shared by Mervyn Street and can be viewed at <https://vimeo.com/280987524>.

3.2.3 'Living waters' model

The living waters model (Figure 3.4) explains the fundamental differences between Traditional Owners' and government managers' perspectives on water. It was created to support better understanding of and communication across Aboriginal and non-Aboriginal worldviews as they relate to water. More information on the framework and the methodology is contained in Laborde and Jackson (in review). Below we provide a summary explanation of this model, and compare it to the water-resource model, which underpins modern water policy.

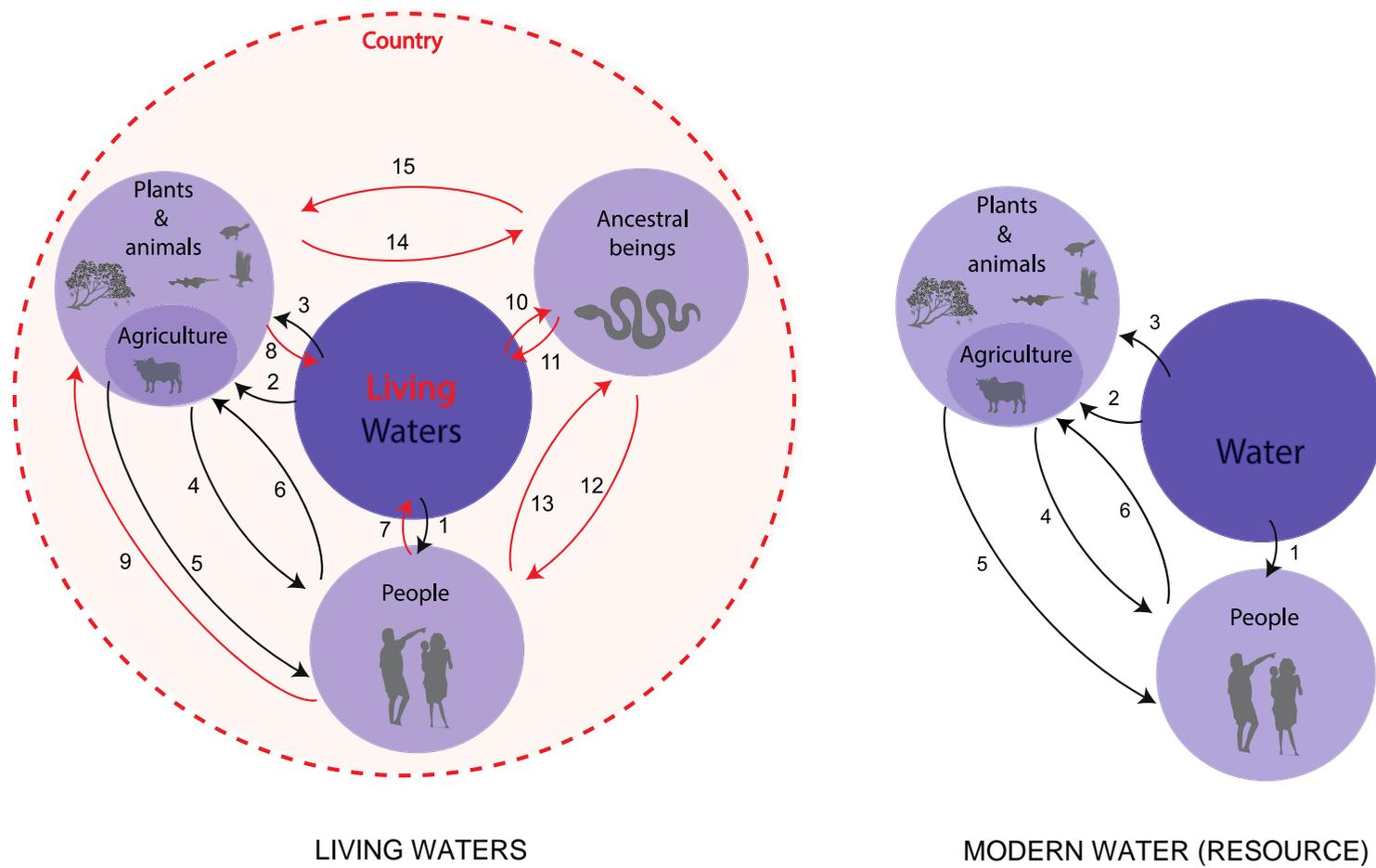


Figure 3.4. Living waters model and modern water (water-resources) model.

The living waters model, in the left panel of Figure 3.4, represents a customary system of management handed down over generations – a paradigm that depicts the relationships between people, other beings and the waters of the Martuwarra/Fitzroy River catchment. It is based on descriptions of these relationships by Aboriginal collaborators in the Martuwarra/Fitzroy River catchment. Languages, places, peoples and protocols vary along the catchment, but the nature of the relationships with the waters and countries are similar. Water is understood as a life force, and part of the world created by ancestral beings that still inhabit the landscape and continue to shape it. The red dotted line around the living waters model represents the Country, which is constituted by reciprocal or mutual relationships between all phenomena – amongst people, and between people and other beings, including living waters. Customary laws – the rules and practices observed by Aboriginal groups – hold these relationships together, in order. Each arrow represents a relationship (noting that the model is not exhaustive); for example, Aboriginal peoples in the catchment depend on living waters (arrow number 1) for drinking and bathing, and also for social and spiritual life as conception and birth sites are often water places. Aboriginal custodians care for living waters in return (arrow number 7), including by visiting them, speaking to them in language and caring for the Country around them. They may do this by cleaning a creek to let it flow, weeding the Country, fencing springs to keep cattle off and in other ways, such as getting involved in water planning and management.

The modern water (water-resource) model, in the right panel of Figure 3.4, represents a modern water paradigm, which considers water solely as an inanimate resource (H₂O) (Linton 2010). State systems of water management are based on this understanding of water as a resource, to be shared across sectors of society and stakeholders (defined as separate water users) for the benefit of the public or common (human) good. This understanding is the basis of water planning and management in WA. This model includes three interacting elements: water, people and ‘biota’ (or plant and animal life, including both natural ecosystems and the crops and cattle introduced to the region over the past 150 years). The arrows indicate the links considered in legislation and policy relevant to water governance in WA. For example, arrow number 1 indicates domestic use of water by landowners or occupiers, in accordance with the *Western Australian Rights in Water and Irrigation Act 1914* (Government of Western Australia 2013a). Arrow number 2 indicates the dependency of agriculture on water, whether for stock or irrigated crops, serviced by DWER via water allocation processes. Arrow number 3 indicates the dependency of the natural ecosystem on water. WA’s Environmental Water Provisions Policy aims to protect the benefits that people get from these natural ecosystems via both environmental and social values (represented by arrow 5). They do this by determining water volumes, based on available scientific knowledge (hydrology and ecology), for ecological water requirements (EWRs), with *social water requirements* a secondary consideration that may be included in EWRs.

Existing water-management tools in Australian policy can be mapped onto the modern water model, for example, environmental flows (arrows 3 and 5), water licensing (arrows 2 and 4), and Strategic Aboriginal Water Reserves (e.g. arrow 4). Under this policy, water is set aside for the exclusive commercial use of Aboriginal organisations (under licence).

Fundamental differences between the models

The key human–water relationships in the water-resource model (right panel) are extraction (arrows 1, 2, 4, 6) and conservation (arrows 3, 5). Within that framework, water management is tasked with the goal of striking an optimal balance between extraction and conservation of

water. In the living waters model (left panel), all relationships described within the Country are reciprocal, involving mutual interactions, instead of water being solely acted upon for the benefit of people (via either extraction or conservation).

Importantly, the living waters model includes a dimension that does not appear in the water-resources model, representing the role of ancestral beings. These are beings or spiritual entities that influence relationships with living waters and with the river Country, such as the snake-spirits that inhabit (arrow 10) and also protect water places (arrow 11). These ancestors, who have different names depending on the language spoken by custodians of the places they inhabit, are able to perceive or feel things and respond. They recognise custodians and have a protective and monitoring role in the Country by making sure the customary rules for managing the Country are respected.

In summary, the system of custodial relationships that underpins living waters emphasises responsibilities on the part of people, animals, plants and other entities. These mutual obligations highlight an important difference between the notions of dependence upon and benefit from a water resource, which is the basis of western water planning and management, and of belonging and responsibility, which is the basis of Traditional Owners' reciprocal relationships with their Country.

The two models are similar in some ways, and they share a number of connections (arrows 1 to 6). However, the relationships represented by arrows 7 to 15 in the living waters model – the red arrows – are not visible to those who take a water-resource perspective. Therefore, as these relationships are expressed by Aboriginal custodians and come to the fore in water-planning consultation meetings, government planners tend to try to mould them into the visible categories of their water-resource paradigm, such as 'cultural values', which are to be managed alongside social or environmental outcomes. This constrains the complex and reciprocal notions of responsibility and care in Traditional Owners' relationships with living waters into a framework that misconstrues them as solely benefits or values *from water to* people. When viewed through the lens of the water-resource paradigm, there is an opportunity for input from Traditional Owners into water planning, but when seen through the lens of the living waters paradigm, such consultation can be felt as an unacceptable restriction of custodial requirements that perpetuates the imposition of colonial frameworks. We are talking here about completely different ideas about what water is and how it should be treated or interacted with. Social scientists define this problem as an ontological problem, which has implications for the recommendations to water planners discussed in the next section.

4. Recommendations to water planners

4.1 Summary of key water governance issues

There is a need to transform the foundations of water governance, while also advancing Indigenous water rights and influence over water landscapes.

The research results presented here are based on four years of work with Traditional Owners and their representative organisations listed in the Project overview section.

The recommendations below are targeted at non-Aboriginal water planners and managers, who rely on a state-wide water-planning framework and have selected the Martuwarra/Fitzroy River catchment as an appropriate planning unit. Therefore, our understanding of Traditional Owners' water planning and management priorities in the Martuwarra/Fitzroy River catchment is synthesised here to offer generic insights (without referring to particular Countries, languages or people).

The diagram below (Figure 4.1) highlights issues and approaches that were raised by our collaborators and that are not mutually exclusive, as illustrated by this quote from a Traditional Owner about the Martuwarra/Fitzroy River planning process (references to the categories in Figure 4.1 are added in brackets):

We all know development will happen if you let it happen. We need to create an opportunity to control it [jurisdiction]. We need water rights, heritage protections, addressing social issues, health, youth suicide [equity and sustainability]. We're not participants, we're owners [jurisdiction; equity and sustainability]. I'm very alarmed by the language. There is a huge power imbalance, with all the money that's gone into governments getting their positions together. We need statutory recognition for our rights, separate to heritage. Then we can talk about planning and licensing [jurisdiction]. (Bunuba Dawangarri Aboriginal Corporation Traditional Owner)

Importantly, the Traditional Owners we worked with indicated a clear need for jurisdictional issues to be taken into account as a matter of priority, hence this issue is considered a foundational one (Figure 4.1). We provide a synthesis of Traditional Owners' requirements in the five recommendations in Section 4.2 of this document.

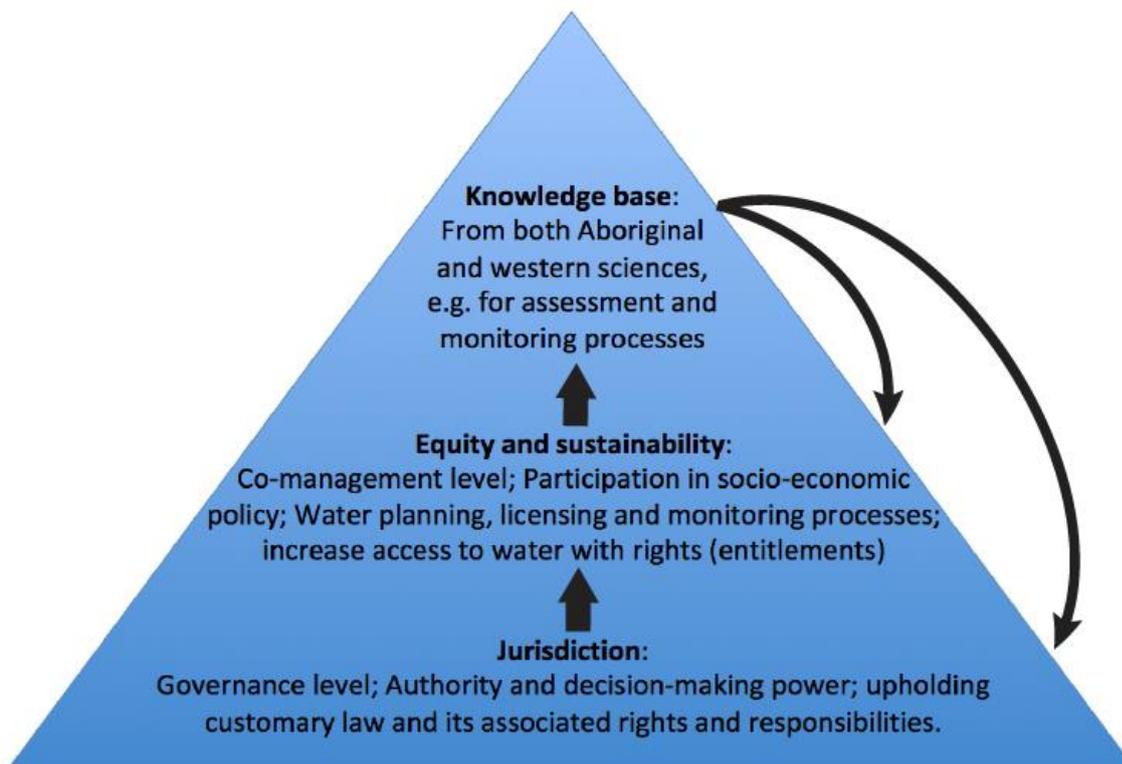


Figure 4.1. Diagram summarising key issues of water planning and management from the perspective of Traditional Owners in the Martuwarra/Fitzroy River catchment.

The need expressed by Aboriginal collaborators to pursue water justice concurrently at the levels of governance, management and knowledge base corroborates findings from the [National Cultural Flows Research Project](#) (Nelson et al 2018), which derived three approaches to cultural flows (Figure 4.2). We describe these approaches below and relate them to the context of the Martuwarra/Fitzroy River catchment.

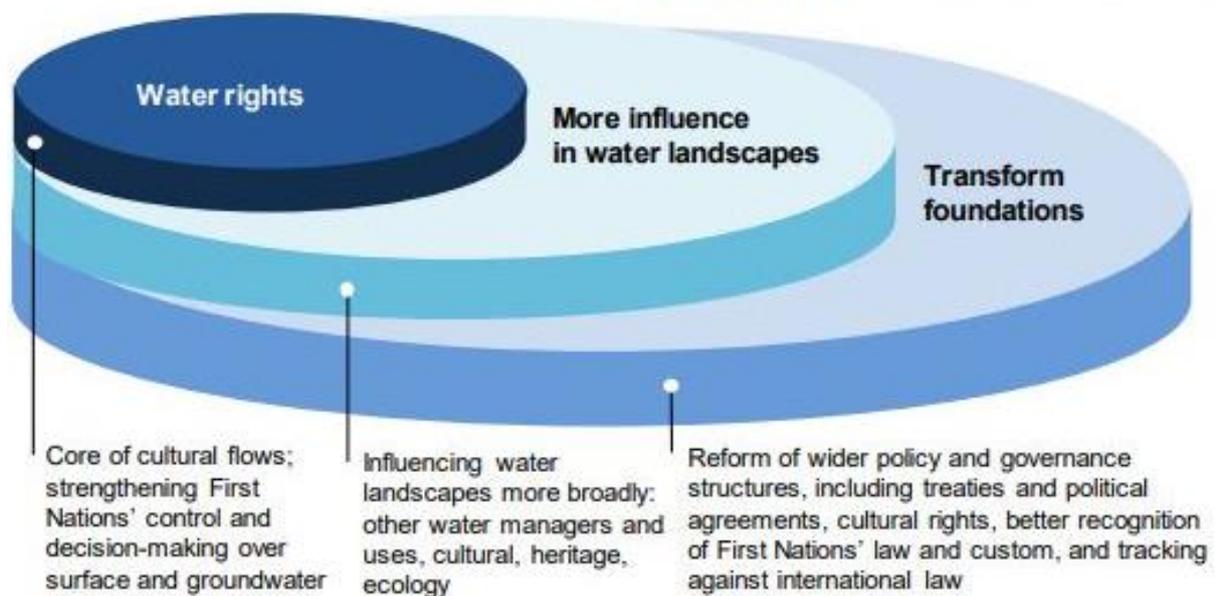
- 1) **Transform foundations (including jurisdiction).** This approach addresses the relationship between the settler state and Traditional Owners to reform the water governance framework (Nelson et al. 2018). This relates to the question of jurisdiction over water (Figure 4.1), which is paramount to Traditional Owners of the Martuwarra/Fitzroy River catchment. These are political questions including: who can speak for the river, who is responsible for keeping it healthy, and who controls it by allocating it to human or environmental use. Traditional Owners question the assertion of authority by the state to allocate or regulate water in their Country, and want discussions of authority, law and decision-making power to take precedence over other water-planning and management processes. A Martuwarra Fitzroy River Council member illustrated the issue by asking the question of ‘who has power at the tap level?’, that is, who is turning the ‘tap’ of water re-allocation on and off. This approach also addresses ontological issues, that is, the tacit way of knowing and understanding water that underlies policy discussions. We discussed this issue in more detail in an article

illustrating the differences between water-as-resource, which underpins water planners' understandings, and living waters, which underpins Traditional Owners' understandings.³

- 2) **Influencing water landscapes.** This approach focuses on the empowerment of Traditional Owners to drive decision-making over their Country, for example, through support for Healthy Country planning, implementation and monitoring. It also entails building partnerships with others who have ownership rights and management and planning responsibilities, and is complementary to the transformation of foundations. It relates in Figure 4.1 to the co-management level and the values of equity and sustainability of water management, including by connecting water-management targets to socio-economic targets. It is associated with the question of what development means, and for whom. Traditional Owners expressed the requirement to be fully aware and have some control over the developments proposed and how the communities living in the Martuwarra/Fitzroy valley may benefit. The issues of prior and informed consent and trust between parties fall into this theme, as well as the request for the development and implementation of co-management principles and processes, including for monitoring. The NWI Renewal recommendations of the Productivity Commission (2021) suggest measures to increase the influence of Traditional Owners over water landscapes.
- 3) **Water rights.** This approach argues for water rights within the existing legal and policy context. It is an approach that is being actively pursued in the Murray–Darling basin, where water rights have been turned into transferrable property under a water market. In that region (O'Donnell et al. 2021) and others (including the Northern Territory and Queensland), the pursuit of water entitlements represents a practical and more immediate way to work towards water justice. In the Martuwarra/Fitzroy River catchment, DWER responded to calls for greater equity in water distributions with their proposal for a Fitzroy Aboriginal Water Reserve. Reserving rights to access water for Traditional Owners has been advocated for some years in northern Australian jurisdictions where transferrable rights are being established under the access provisions of national water policy (Godden et al. 2020; Jackson & Altman 2009). It is related in Figure 4.1 to the question of equity. Increasing Indigenous water holdings is also the target objective of the Closing the Gap agreement (CATSIPO & Australian Governments 2020).

³ The authors have written a paper titled 'Water resource or Living Waters? Ontological differences and the governance of waters and rivers' for the international journal *Local Environment*.

Figure 9.1 The National Cultural Flows Research Project framework introduced three legal and policy approaches to cultural flows



Source: National Cultural Flows Research Project (2018).

Figure 4.2. Three approaches to cultural flows (Figure 9.1 from Nelson et al.2018).

4.2 Water-planning recommendations for the Martuwarra/Fitzroy River catchment

In the Martuwarra/Fitzroy River catchment, Aboriginal organisations are pursuing all three approaches to securing more control and influence over water and the benefits it generates in their respective Countries. The Martuwarra Fitzroy River Council is arguing strongly for transforming the jurisdictional foundations of water governance (RiverOfLife et al. 2020). Some of the PBCs are choosing to focus their efforts on local water rights and access to water.

Our research, while generating evidence that can support PBCs in pursuing a water rights approach or an increase in their influence over water landscapes (e.g. Nyikina calendar), has encountered a fundamental ontological problem that cannot be resolved by technical means within the existing policy framework. As our papers and others argue, the legal orders of the settler state and its political legitimacy are contested by Traditional Owners and their representative organisations (e.g. RiverofLife et al. 2021). Here we make recommendations to water planners and managers involved in the Martuwarra/Fitzroy River catchment, based on this research.

1. That the limitations of current Indigenous recognition policies be acknowledged, and that the Western Australian Government commit to a process of reform. The goal of recognising Indigenous interests in water is currently oriented towards protecting a narrow set of cultural values and, less so, improving water justice and socio-economic outcomes from possible water-resource development. The scope of government responses to the water issues in the Martuwarra/Fitzroy catchment needs to encompass water governance and jurisdiction, as well as economic development options.

Aboriginal water rights, values, knowledge and governance principles have been overlooked in Australian water policy and planning practice. The denial of Indigenous rights during Australia's history and the recent failure to address sovereignty have produced unfair water-planning and management processes, promoted unequal distributions of water and political influence, and limited Indigenous well-being and wider political relations between Indigenous Peoples and the state (Hartwig et al. 2021). For example, Native Title processes do not allow Traditional Owners a right to negotiate over water-resource developments or to veto licences (O'Donnell 2013).

Traditional Owners require joint planning and management to be based on statutory recognition of the legitimacy of Aboriginal sovereignty, customary law, extensive knowledge of Country and modes of water governance, with an aim for fair outcomes in water decision-making and licensing. In the Martuwarra/Fitzroy River catchment, Traditional Owners challenge the jurisdiction of governments to allocate the waters of the Martuwarra/Fitzroy River on the assumption that these waters are unused or underutilised resources and therefore unproductive. Traditional Owners also challenge the assumption that the state has the exclusive right to regulate water and grant entitlements to other parties for its use. Traditional Owners argue that extensive and detailed knowledge of Country underpins authority to assert rights and interests and exercise jurisdiction.

There is a law for the river and it still stands, a place-based law for the river, the jila and the creeks – living water, everything (...) [First] Law governs how river works and behaves and how people should.” (Walalakoo Aboriginal Corporation Traditional Owner)

As discussed above, there are three approaches (Figure 4.2) to addressing this need. In other parts of Australia, Aboriginal organisations seek to hold rights to water and to use this powerful position to negotiate other roles and responsibilities. The declaration of an Aboriginal Water Reserve is one proposed approach in the Martuwarra/Fitzroy River catchment. If pursued, our research suggests that it should be pursued jointly with more foundational reforms, including jurisdictional reform.

2. A new governance model needs to replace the existing one that relies on limited consultation with Traditional Owners, who are perceived as stakeholders by virtue of their 'cultural values'. Governments should strengthen environmental governance institutions in the Kimberley to accommodate Traditional Owners' governance principles, intellectual traditions and customary management institutions, and develop models for sharing authority, managing Country, and setting and implementing collective goals.

Our research highlighted the difference between the subject position of a stakeholder and a custodian. A stakeholder is a person who may hold stakes in water simply considered a resource. A custodian is a person with rights under Australian law (such as through Native Title), and the relational benefits and responsibilities towards water places encompassed by First Law (RiverofLife et al. 2020). Within the modernist settler-colonial water-resource paradigm in which Australia operates, the Crown assumes the sovereign authority to control and allocate water, and the government, in theory, adopts a procedural stance of neutrality that entails consulting with 'stakeholders'. Currently, Native Title law narrowly defines Traditional Owners' water interests and largely excludes Traditional Owners from playing any influential role in management, as does heritage law.

These legal orders and sphere of political legitimacy are contested in the Kimberley and elsewhere. Comments made during this research confirm that Traditional Owners are critical of mainstream forms of engagement (consultative and service delivery model) and are asserting the right to alternative systems of resource management and environmental governance. Kimberley Traditional Owners (as other Aboriginal peoples are in other parts of Australia) are calling for the recognition of their own law and custom as a jurisdictional issue, as well as reforms to existing laws for water and heritage management.

Our research points to the need for joint decision-making and management to support an increase in Traditional Owners' institutional capacity to plan, manage and monitor their water environments. Such recognition of Aboriginal sovereignty has been the basis of co-governance of waters in other parts of Australia. In South Australia, for example, the Ngarrindjeri people have advocated for governments and others to move away from engaging with Traditional Owners as a 'cultural interest group' (Hemming et al. 2019) to acknowledging Indigenous political formations. Ngarrindjeri Regional Authority members asserted that Traditional Owners should be 'resourced as authorities responsible for reframing water management and planning approaches to facilitate the equitable collaboration of Indigenous and non-Indigenous epistemologies and ontologies' (Hemming et al. 2019).

Planning processes should broaden their scope and provide the means for planners to understand ontological differences and reflect on their own assumptions and knowledge frameworks. In addition, they need to promote wider community understanding and respect for Traditional Owners' water governance, management and knowledge frameworks.

Agreements between government and Indigenous governance institutions should be negotiated to formalise statutory rules for joint management and taking action to achieve chosen goals, including via the resourcing of Traditional Owners' water planning and management institutions.

3. Traditional Owners are custodians of water places and bodies, with management responsibilities that need to be continually fulfilled through culturally competent water planning, management and monitoring.

Existing legislation for water governance in WA is based on a modern water paradigm that cannot genuinely accommodate for Aboriginal understandings and governance of waters, as it fails to see and consider custodial relationships. Traditional Owners' water governance principles are based on the long-term, complex and dynamic feedback between community health and the health of the river Country – they are attentive to the many reciprocal relationships that need to be maintained as the foundation of a healthy river Country.

The Martuwarra Fitzroy River Council has prepared documents to advance its vision for cultural heritage management of the river, including a Conservation and Management Plan for the National Heritage Listed Fitzroy River Catchment Estate (CMNHP). The CMNHP's first position statement is that 'the concept of living water is central to sustaining heritage values'. Living waters, our research has shown, emphasises reciprocal, custodial relationships rather than ownership of or benefit from water. Note that an emphasis on custodianship does not represent a rejection of water ownership. Traditional Owners, like many Indigenous peoples (Jackson 2018), face a double bind whereby recognition within current policy frameworks only affords relations protection if those relations are redefined as property interests in a language based on possessive individualism (e.g. ownership of water). One of our collaborators put it this way:

We need statutory recognition for our rights, separate to heritage. Then we can talk about [water] planning and licensing. (...) It's a political issue. Water is the next global currency. I am assuming I am a licensed water holder and that by having these discussions I am thinking about how much water I have to give up. (Bunuba Dawangarri Aboriginal Corporation Traditional Owner)

Traditional Owners require that planning processes establish the means of sourcing the best available evidence and mechanisms, and that this include both scientific and Traditional Owners' knowledge. Given that the maintenance of relationships requires the direct involvement of Traditional Owners, they seek an acknowledgement that the presence of Traditional Owners on their Country, including (but not only) in the context of Healthy Country planning and ranger activities, constitutes a kind of continuous adaptive management that should be valued and supported, including through funding.

Because the social and cultural significance of waters in the Martuwarra/Fitzroy River catchment is expressed in the quality of relationships between waters and custodians, custodians should be leaders in long-term management activities, including monitoring processes that assess the health of living waters. This will require resourcing as well as sharing of power and authority. Resources should be made available to create a role for Traditional Owners in monitoring of water and contributing to enforcement of regulations that meet the needs of both government and Traditional Owners.

The recent Yamatji Nation Indigenous Land Use Agreement is an example that includes significant investment from the Western Australian Government (a total of \$1,355,000) in the training and contracting of Yamatji Traditional Owners in water monitoring. This is a very important step forward in recognising the role of Traditional Owners in monitoring the waters in their Country. While training and employing Aboriginal Traditional Owners in western scientific approaches to water monitoring is a critical step to strengthen the role of Traditional Owners in current frameworks of water management, we note that Aboriginal water monitoring and management approaches should also be acknowledged and resourced.

4. Efforts should be made to improve government regulation of land and water use and public trust in processes of regulation and compliance.

Knowledge of the impacts of water-resource development on the Martuwarra/Fitzroy River catchment is incomplete and contested. It also appears that government may introduce a staged approach to water allocation, which relies entirely on the capacity to detect and adapt to problems as they arise. The risks of cumulative impacts also represent a challenge for any environmental management framework, particularly where groundwater is being used. Knowledge gaps and uncertainty pertaining to western science should be made explicit, and the limitations of transferability from other locations must be acknowledged (Douglas et al. 2019), as should the lack of community trust in government processes and adequacy of risk management measures.

Currently there is a lack of trust in government regulation, monitoring and enforcement in the Martuwarra/Fitzroy River catchment. Traditional Owners have argued that examples of mismanagement, such as those at Snake Creek, illustrate how unreliable government monitoring and compliance processes are:

We've got these situations where we are not seeing good water management, which makes it very difficult to have faith in compliance and regulation. (Walalakoo Aboriginal Corporation Traditional Owner)

Traditional Owners have argued for a legal mechanism that allows them to raise matters of concern for immediate inquiry by state institutions currently responsible for environmental monitoring and compliance. Another related issue raised is the lack of transparency of the monitoring process: monitoring reports of impacts on environmental and cultural values are, under the current framework, to be produced by developers who are not required to make this information accessible to Traditional Owners. This represents a lack of transparency from the perspective of Traditional Owners, which needs to be promptly addressed.

The considerations above relate to options available within the existing framework, around monitoring water volumes and environmental impacts. Our research suggests that this is important but not sufficient, and that the monitoring and compliance processes associated with water allocation need to be put on the table for negotiation with Traditional Owners and potentially subject to independent review. Part of the basis for such negotiations should include that Traditional Owners, as custodians of their Country, are the only competent people to lead and provide advice on the monitoring and assessment of impacts on their cultural values associated with water.

5. Traditional Owners require water planning and management to be encompassed in broader socio-economic development and well-being frameworks. This requires better integration across government departments. For example, the links between good water management and Traditional Owners' psycho-social and physical health should be acknowledged and addressed in collaboration with health agencies and departments.

UNDRIP states that Indigenous people have the right to use water for their economic, social and cultural development. Water law and policy needs to enable Traditional Owners to fully realise this right, which is based in international law and includes protecting the means of subsistence and the cultural heritage of water bodies, as well as advancing economic opportunities. It also includes opportunities to participate in good-faith negotiations over water-resource development with free, prior and informed consent. In the Martuwarra/Fitzroy River catchment, Traditional Owners have clearly stated that prior and informed consent over water-resources development requires an understanding of the benefits and costs for Aboriginal communities in the catchment, as illustrated by these quotes:

When it comes to business, there's not enough consideration of the threat to the people and animals who live on Country. What's the Country going to be like in 30 years? Nobody looks that far, it's about production and extracting water until it dries out, because they can always leave. And that's been happening for many generations with the white society. But we are the people who are going to face all these consequences in the future. Not only that, but what's the benefit for the people on the ground? (Walalakoo Aboriginal Corporation Traditional Owner)

Monitoring processes need to include assessment of the quality of life in Aboriginal communities in the [Martuwarra/Fitzroy] valley. People are living in poverty, in overcrowded houses. If any water-resource development is to happen, there needs to be control by Traditional Owners and the certainty that it will improve the standards of living of Aboriginal people. (Bunuba Dawangarri Aboriginal Corporation Traditional Owner)

The strength of people is in Country, including the river. Our elders have nothing else to stand up for, the sky is not enough to make old people strong. (Bunuba Dawangarri Aboriginal Corporation Traditional Owner)

Traditional Owners see a strong connection between healthy river relationships and healthy people. Disempowerment in political processes, as well as over-extraction of water and other negative environmental impacts, would affect people's health and well-being, which is already poor. This understanding may test the extent to which water planning addresses broadly defined social issues.

5. Ongoing work and legacy of the project

In part because of the impact of COVID-19 on our ability to work collaboratively in communities in 2020, some of the data collected is still being analysed and we have sought funding to continue producing work from it, and to return it to communities. The following processes have emerged from this project and are ongoing:

- 1) We made a submission to DWER in August 2021, in response to their discussion paper 'Managing water in the Fitzroy River catchment'.
- 2) We have partnered with Jarlmadangah Burru Aboriginal Corporation to celebrate the Nyikina seasonal calendar through a mural on a decommissioned water tank in Jarlmadangah community. We obtained extra funding from the Water Corporation's Kimberley Community Grants. The mural painting occurred in September 2021, with the support of mural artist Mel McVee.
- 3) We have obtained a small grant from the Australian Linguistic Society, in partnership with linguist Thomas Saunders, to use Big Nyikina recordings about water that were made as part of this project to create useful material for the Noonkambah independent school, in collaboration with Big Nyikina language specialists in Noonkambah.
- 4) One more short film is in preparation with material collected as part of this project, focusing on women's wisdom around water and mental health.
- 5) One more article is in preparation for a special issue of the journal *Frontiers in Water*, looking at the role of non-humans in Aboriginal adaptive management of Country and its waters. We are focusing on Majala/Gooroo (freshwater mangrove) as an example and working with Nyikina and Gooniyandi experts.
- 6) We have produced [a story map](#) to present all our research results in a web-based and user-friendly way.

Items 1 and 2 have already been co-designed with and/or presented to relevant Traditional Owners. Items 3, 4, 5 and 6 will be or have been collaboratively produced with Traditional Owners and subject to the same approval process that we have followed for previous project outputs.

6. Conclusions

This project has sought to document and analyse the knowledge and significance of water and the river Country as understood by Aboriginal collaborators, as well as Aboriginal water governance principles, their place in relation to government methods of water governance, and their contributions to water justice and sustainability.

The different outputs that we co-produced with Traditional Owners emerged from research processes that helped us build a relational model of the catchment and its waters. For a summary of outputs see Section 3 of this report; for recommendations to water planners, see Section 4.

Through this research, we have understood that water places in the river Country have a life of their own and in relation to their custodians. Many places are known by their language names and interacted with on those terms. Some of our work with Aboriginal language experts in the catchment illustrated the richness and relationality of language around water, and clarified the critical role of Aboriginal languages to interact with Country and maintain adaptive custodial relationships.

Our work with senior Nyikina women on a Nyikina seasonal calendar and hydro-ecological framework illustrated a depth of knowledge of Nyikina Country (that may be called Nyikina science), and of the interdependencies and relationships across the ecological, cultural, ethical and spiritual dimensions of the Country and its waters.

The work with Gooniyandi elder Mervyn Street highlighted the role of water and the river as mediating social and cultural connections (including across language groups) as well as all life in the catchment.

The living waters framework was developed to illustrate and help explain these relationships between people and water. The foundational problem identified by the living waters framework cannot be resolved by incorporating Indigenous cultural values into a water plan within the government's modern water framework, as made clear in our recommendations to water planners. Kimberley Traditional Owners have different views from government planners about *what water is, how we should relate to it and how it should be managed*. The living waters framework helps identify shortfalls in approaches to governing water and their ability to support the relationships particular groups have with their waters. Planning and management actions such as mapping important sites or water holes, or seeking to protect certain fish species by making sure water levels stay at a certain height, for example, may be helpful, but will not be sufficient to address this problem. The ontological differences challenge the entire system of governing water. In WA, the government acknowledges the importance of protecting Aboriginal cultural values around water, but its approach is still anchored in a modern water framework that considers the government as the sole decision-maker responsible for the catchment's waters. From this perspective, Aboriginal custodians are positioned as stakeholders to be consulted rather than custodians with decision-making power and management responsibilities as well as capabilities.

There is a need for further research that analyses the opportunities (or lack thereof) for current water policy and management frameworks to truly consider Aboriginal custodial values. Research can, we hope, foster understanding between Aboriginal custodians of the Martuwarra/Fitzroy River waters, government regulators and others who are interested in or

concerned about water management. The models that we developed through this research are intended to do that. Our aim is now to see if mapping out fundamental differences in world views around water, as this research has done, can serve to redistribute power and authority, as well as increase the possibilities for forms of co-operation and negotiation that respect the profound differences between Indigenous and non-Indigenous understandings of water, in a variety of contexts.

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