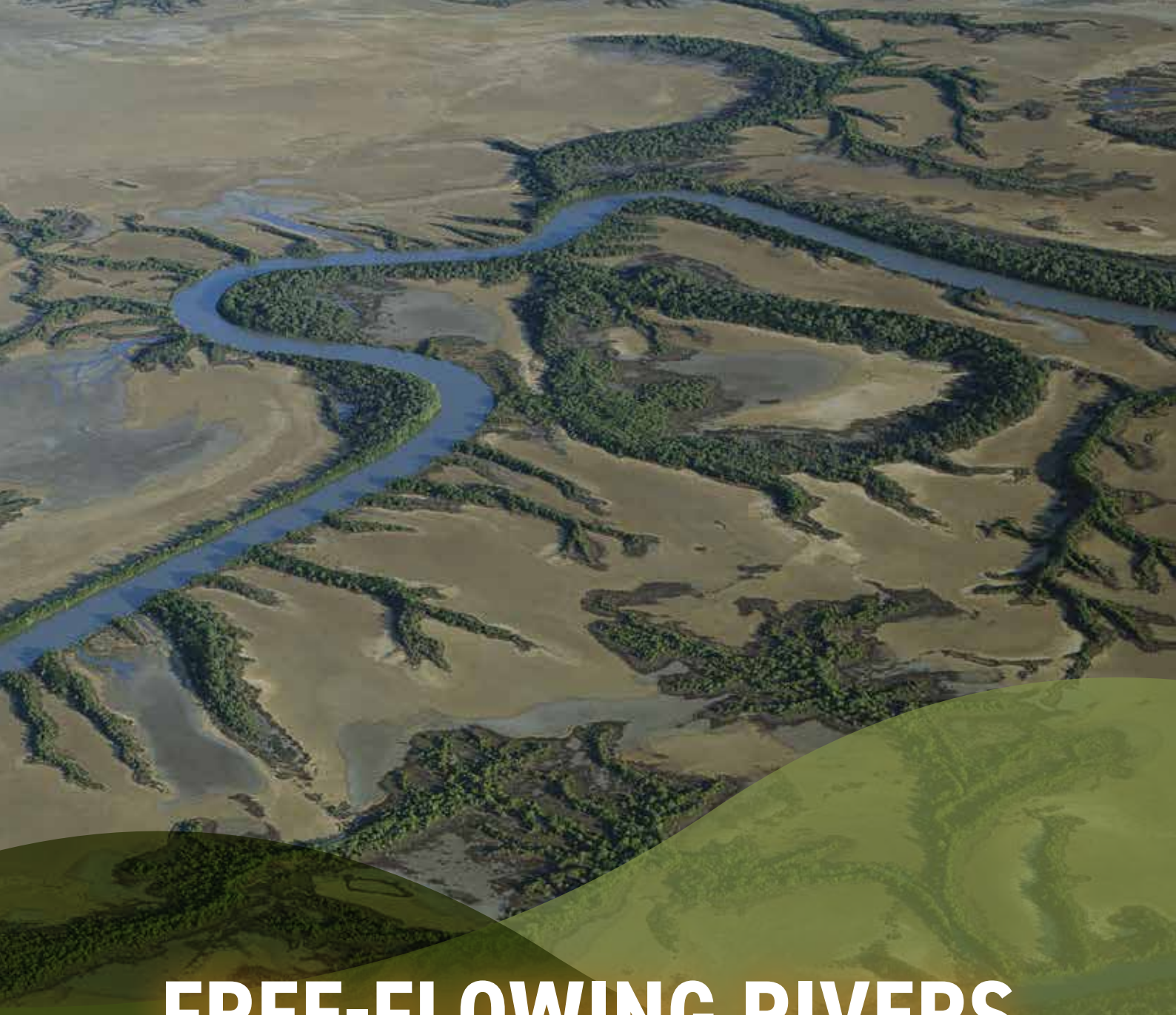

FREE-FLOWING RIVERS OF AUSTRALIA'S NORTH

SUMMARY REPORT

TERRITORY RIVERS
KEEP 'EM FLOWING

CONTENTS

PUBLISHING INFORMATION

Summary report to *Free-flowing rivers of Australia's North*

Prepared for Territory Rivers Keep 'Em Flowing.

Territory Rivers: Keep 'em Flowing is an alliance of non-government organisations including the Pew Charitable Trusts and the Environment Centre NT (ECNT).

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Roper River delta. Credit: Jean-Paul Ferrero/AUSCAPE/Alamy

Inside cover image:
Daly River floodplains. Credit: Shaana McNaught

Back cover image:
Adelaide River during the wet season. Credit: Janelle Lugge

1 INTRODUCTION

Fish kills, algal blooms, pollution, salinity, parched wetlands, local extinctions – people and wildlife have paid dearly for the overexploitation and mismanagement of rivers in southern and eastern Australia. Now, the dream of cheap and abundant water is luring irrigators to the North, as plans are being enacted to turn the region into a major irrigation province.

Promoting an old vision of a northern food bowl, governments and industry are touting irrigated cropping as a spinner of jobs and prosperity. But there has been no assessment of whether this is what the people of the North want, and whether it is an optimal and sustainable pathway for development or compatible with maintaining thriving rivers in what is one of the world's last remaining concentrations of free-flowing rivers.

Water licences, land clearing permits and infrastructure approvals are being issued without adequate consideration of the environmental, social and economic consequences of large-scale irrigation and without the meaningful involvement of communities in decision-making. Traditional Owners continue to be sidelined in decisions about the rivers they have managed for tens of thousands of years, and which remain vital to their cultural and economic wellbeing.

Despite some policy reforms, the approach to northern development mirrors that which has led to degradation of the southern rivers. This approach assumes that rivers should be exploited – up to some level deemed 'sustainable' that is said to optimise environmental, social and economic outcomes.

Australians should deliberate very carefully over the future of the northern rivers – for they have enormous value in their current form for people and nature. Crucial questions include:

- What are the characteristics of these rivers and how are they valued by people?
- What are the likely ecological, social and economic impacts of large-scale irrigation developments?
- How adequate are water laws and governance processes in the North?
- How can the North be sustainably developed while protecting the rivers treasured by people?

Our focus area encompasses the northern-most catchments of Australia – 62 catchments draining into the Timor Sea, the Gulf of Carpentaria or the Coral Sea, covering 1.25 million square kilometres, 16% of Australia's land area (Figure 1). The region is roughly classified as the Wet-Dry Tropics – where the climate is largely controlled by the equatorial southern monsoon and characterised by highly seasonal rainfall, with most falling in a short summer wet season.

Daly River floodplains
Credit: Shaana McNaught

2 FLOWING TO THEIR OWN TUNE

THE HIGHLY DISTINCTIVE RIVERS OF THE WET-DRY TROPICS

RIVERINE RHYTHMS

More than a million gigalitres of rain fall across the North each year. About 20% of that flows down streams and rivers and 15% drains into aquifers, while the rest evaporates or is transpired by plants. The 200,000 gigalitres flowing to the ocean represents more than 60% of Australia's total streamflow. Irrigation proponents often call it 'wasted' water.

But, paradoxically, the Wet-Dry Tropics is also parched much of the time. More than 90% of rain falls during the short wet season, and most of that, about 60%, falls near the coast, limiting the potential for water capture. As the seasons cycle from wet to dry, the northern rivers assume very different characters – most turning from swollen torrents to parched sandy beds with isolated waterholes.

Ecologically (and hydrologically and culturally), we should not talk just of rivers – for water, being water, moves in three dimensions – laterally (between the floodplain and river channel), vertically (between aquifers, the surface and the atmosphere), and longitudinally in the river channel – rising and ebbing over the seasons. When unconstrained, this flow shapes and sustains an immense diversity of aquatic habitats – lakes (saline and freshwater), swamps, billabongs, anabranches, lagoons, overflows, waterholes, streams, lagoons, floodplains and aquifers.

For most of Australia's colonial history the approach has been to try to tame rivers, by regulating their flows, reducing variability and corralling 'excess' waters for 'productive' purposes. In many southern catchments, the result has been the sundering of river connections to land and the conversion of aquatic systems to terrestrial ecosystems. Magpie geese, which have been made extinct or rare in the southern Australia by wetland destruction and degradation, abound in the North – testament to the still mostly intact connectivity between rivers, floodplains and wetlands.

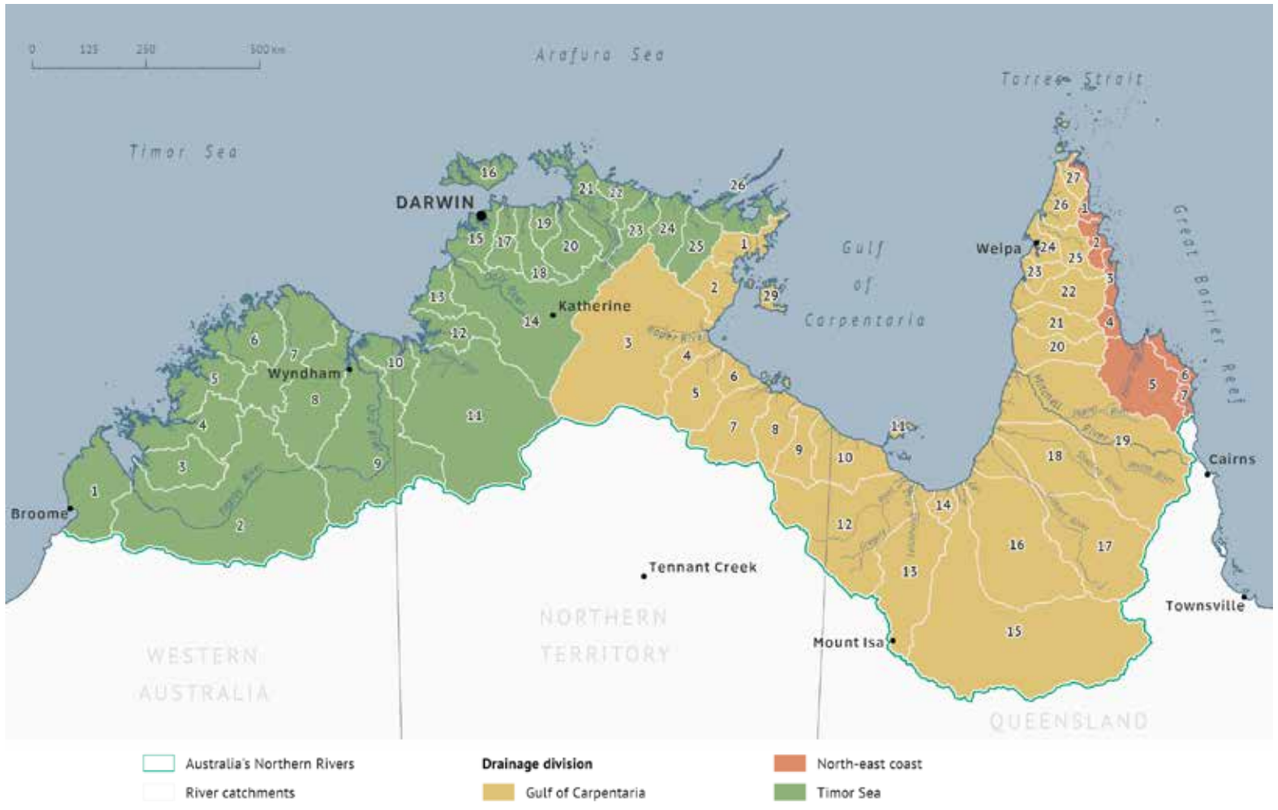


FIGURE 1. The Wet-Dry Tropics focus area

Source: *Geoscience Australia 1997* [33]

Notes: *The focus area encompasses 62 catchments across three drainage divisions – the Gulf of Carpentaria (29 catchments), the north-east coast (7 catchments) and the Timor Sea (26 catchments). The catchments are named on the map. The largest catchments are the Flinders in Queensland, the Fitzroy in Western Australia and the Roper and Victoria in the Northern Territory.*

Gulf of Carpentaria			
1	Koolatong River	17	Gilbert River
2	Walker River	18	Staaten River
3	Roper River	19	Mitchell River
4	Towns River	20	Coleman River
5	Limmen Bight River	21	Holroyd River
6	Rosie River	22	Archer River
7	Mcarthur River	23	Watson River
8	Robinson River	24	Embley River
9	Calvert River	25	Wenlock River
10	Settlement Creek	26	Ducie River
11	Mornington Island	27	Jardine River
12	Nicholson River	28	Torres Strait Islands
13	Leichhardt River	29	Groote Eylandt
14	Morning Inlet		
15	Flinders River		
16	Norman River		

Timor Sea			
1	Cape Leveque Coast	17	Adelaide River
2	Fitzroy River	18	Mary River
3	Lennard River	19	Wildman River
4	Isdell River	20	South Alligator River
5	Prince Regent River	21	East Alligator River
6	King Edward River	22	Goomadeer River
7	Drysdale River	23	Liverpool River
8	Pentecost River	24	Blyth River
9	Ord River	25	Goyder River
10	Keep River	26	Buckingham River
11	Victoria River		
12	Fitzmaurice River		
13	Moyle River		
14	Daly River		
15	Finniss River		
16	Bathurst And Melville Islands		

North-east Coast	
1	Jacky Jacky Creek
2	Olive-Pascoe Rivers
3	Lockhart River
4	Stewart River
5	Normanby River
6	Jeannie River
7	Endeavour River

UNFETTERED FLOWS

One of the outstanding qualities of the north is that almost all the rivers flow freely. Largely unimpeded by dams and weirs, their flows are governed by seasons rather than irrigators.

These days, it is an increasingly rare privilege – and responsibility – to live among healthy rivers. A global assessment of rivers, based on 23 stressors that threaten human water security or biodiversity, found that 80% of the world's people live where rivers are highly threatened. In contrast, Australia's North has one of the world's largest concentrations of least threatened rivers (for biodiversity values), as do the Amazon and Arctic/subarctic regions.

Australia represents two extremes when it comes to river health – with some of the world's healthiest rivers in the Wet-Dry Tropics and some of the most damaged in the south and the east. Of the northern freshwater ecoregions, the Arafura–Carpentaria has 98% free flow (as an average proportion of watercourse length) and the Kimberley 94%. But the eastern coastal ecoregion has only 56% free flow and the Murray-Darling Basin 46%. With only two of its 22 major rivers free of dams and about 10,000 barriers obstructing flows, the Murray-Darling ranks among the worst 2% of ecoregions in the world for impeded flows. Of the 550 dams across Australia with more than 10 gigalitres capacity, just 12 occur in the Wet-Dry Tropics.

This is not to say that the northern rivers are pristine. An assessment for Australia's 2016 state of the environment report rated 20 river systems in the Wet-Dry Tropics as least disturbed but 11 in the three bottom categories of 'disturbed'. Almost all catchments have been affected by major changes in land use and land management since colonisation. Much of the region is used for grazing and there are patches of cropping, forestry and mining, mostly around permanent water sources. But apart from damage caused by weeds, feral animals and livestock, most of the rivers, wetlands and estuaries are in near-natural condition. Critically, on average less than 5% of the catchment areas have been cleared.

Large-scale clearing for cropping would fragment and damage the world's largest remaining expanse of relatively intact tropical savanna woodland. This vegetation type used to cover 12% of land globally. But, with 70% having been cleared, more than a quarter of what remains in good condition is in northern Australia.

The Martuwarra/Fizroy River
Credit: Nick Covelli

3 LIVING WATERS OR RESOURCES

CONFLICTING WAYS OF PERCEIVING RIVERS

AQUATIC WILDLIFE

The cacophony of wetlands, vast flocks of waterbirds and abundant fishes are exuberant indicators that wildlife still exists in abundance in the intact river systems of the Wet-Dry Tropics. With high species richness and uniqueness, the region contributes substantially to the megadiversity for which Australia is renowned. The rivers are Australian hotspots for freshwater fishes, and the major population stronghold for four of the world's five sawfish species, all highly threatened. About half of Australia's turtle species are found mainly or only in the Wet-Dry Tropics.

Australia is a global biodiversity hotspot for animals living in groundwater (stygofauna) and in subterranean voids above the water table (troglofauna) – but there have been few biodiversity surveys in the Wet-Dry Tropics. A recent pilot study in the Northern Territory's Beetaloo sub-basin revealed the presence of a diverse stygofaunal community whose species were all new to science. DNA analysis indicated a high degree of aquifer connectivity, which means that activities altering groundwater quality or quantity could have impacts over a large area, including on rare species.

The survival of many species relies on healthy rivers and river catchments. But the list of threatened species in the Wet-Dry Tropics has been growing rapidly – in part because of new information or threats growing elsewhere, but also because conditions have been deteriorating, particularly with adverse fire regimes, the intensification of grazing and the impacts of invasive species.

Barramundi (Lates calcarifer)
Credit: Karl Timmer

CULTURES AND RIVERS

In 2006, a five kilometre stretch of the McArthur River was diverted to make way for a massive open-cut zinc mine. In anyone's culture, this is a brutal way to treat a river. But for many traditional custodians, the damage to the dreaming tracks followed by two Yulanji (Rainbow Serpents) that converge at the mine site also has spiritual and cultural consequences. Rainbow serpents and other spiritual beings feature in many Indigenous cultures across Australia, typically as creators and protectors of waterways and wetlands. How to respect the cultures and beliefs of Indigenous peoples remains one of the searing challenges for Australian society – including in water policy.

Although the Wet-Dry Tropics region covers about 16% of the Australian mainland, fewer than 2% of Australians, about 280,000 people, live there. And although Indigenous peoples make up only 3.2% of the Australian population, they comprise 29% of residents in the North. Aboriginal people have some form of title over two-thirds (69%) of the region, but hold few legal rights to water.

How to respect the cultures and beliefs of Indigenous peoples remains one of the critical challenges for Australian society – including in water policy.

Modern water laws and policies are based explicitly on the notion of rivers and aquifers as *resources* – with water regarded as a valuable commodity that should be put to productive use. According to the Australian Government's 2015 White Paper on Developing Northern Australia, irrigated cropping is essential to 'unlock' the region's potential and to help feed the world.

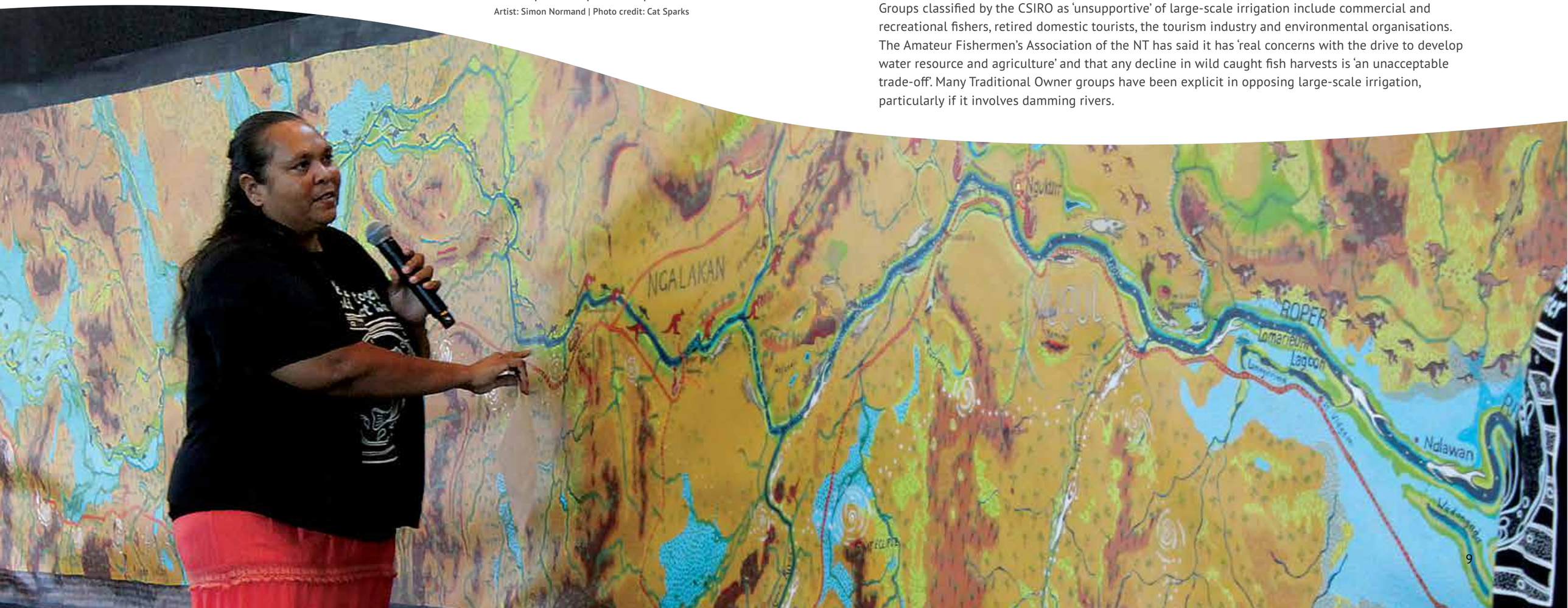
Under modern water regimes, the environment is characterised as one water user, with a quantifiable degree of need. Culture too has been portrayed as a competing water use. But while there is now interest by some governments in labelling certain volumes of water as 'cultural flows', there has mostly been an assumption that cultural values can be protected by tweaking environmental flow rules – which is likely to misconstrue the cultural significance of rivers to Traditional Owners.

A major challenge for governments committed to protecting Indigenous cultural values is to understand and accept as legitimate the ways in which Traditional Owners understand, value and relate to their environment. For many Traditional Owners, rivers are living, spiritual forces with their own interests and rights, created by ancestral beings who still inhabit the landscape and have great influence over the river and people. These beings, rivers and people are all bound to each other and have mutual obligations. To maintain these relationships, Traditional Owners must maintain their customary laws, which requires them, for example, to visit sites, speak to them in language and care for the country around them.

In acknowledging the cultural differences and their importance to Traditional Owners, water planners have tried to integrate them into the resources model. But the category of 'cultural values' as applied in water planning does not encapsulate the complex and reciprocal relationships and custodian obligations of the living waters model. And the allocation of certain volumes of water for cultural purposes does not suffice to maintain those relationships.

Linda Williams, a member of the delegation presenting the Roper River cultural map to Australian Parliament, talks about the map and the places it represents.

Artist: Simon Normand | Photo credit: Cat Sparks



OTHER VALUES AND VIEWS

Governments have done little to find out what northern residents think about the prospects of a major irrigation industry. Instead, they provide piecemeal opportunities for public consultation on particular water plans, policies or project approvals. However, the public commentary and the limited research undertaken indicate a lack of social licence for large-scale irrigated cropping in the North.

Farmers are not a homogenous group. While some are excited by emerging opportunities for irrigated cropping, others warn about the risks of 'grand schemes' and would prefer to see more support for current practices rather than greenfield irrigation projects. Some accept the need for a social licence.

It is understandable that southern cotton-growers want to move north – to evade the climatic uncertainties, water constraints and high water costs that now prevail in the Murray-Darling Basin. But the spectre of the south – fish kills, dead river gums, desiccated wetlands, rivers reduced to muddy trickles – is a major barrier to a social licence for the irrigation industry in the north.

Commonwealth Scientific and Industrial Research Organisation (CSIRO) analysis has found little local, regional or national support for large-scale irrigation developments in the Wet-Dry Tropics. The only strong supporters for greenfield developments are certain government agencies and agricultural and mining interests. That some government agencies are classified as the strongest supporters is a concern for governance – indicating a tendency for these agencies to function as champions of irrigation rather than act on behalf of the broader public interest.

Groups classified by the CSIRO as 'unsupportive' of large-scale irrigation include commercial and recreational fishers, retired domestic tourists, the tourism industry and environmental organisations. The Amateur Fishermen's Association of the NT has said it has 'real concerns with the drive to develop water resource and agriculture' and that any decline in wild caught fish harvests is 'an unacceptable trade-off'. Many Traditional Owner groups have been explicit in opposing large-scale irrigation, particularly if it involves damming rivers.

4 FOLLIES AND FALLACIES

PAST AND PROPOSED IRRIGATION DEVELOPMENTS IN THE NORTH

In 1959, despite misgivings about the viability of the proposed Ord River scheme, the Australian Government granted £5 million to build a diversion dam. Eight years later, in the face of a tough election, the government then agreed to fund the main dam – even though no commercially viable crop had yet been found and the existing farms relied on massive subsidies. Today, thanks to massive public subsidies, the Ord scheme remains the only large-scale (>10,000 hectares) irrigation scheme operating in the Wet-Dry Tropics. It has proved a woeful public investment for Australians, with economic losses compounded by devastating environmental and cultural damage and large greenhouse gas emissions.

In a considerable understatement, CSIRO's 2018 northern water resource assessment reports note that many irrigation attempts in the north 'have not fully realised their goals'. In fact, every major irrigation scheme in the north has been an agricultural or economic flop.

CURRENT AND PROPOSED IRRIGATED CROPPING

Despite over a century of concerted attempts with large government subsidies, irrigated cropping in the Wet-Dry Tropics (currently about 50,000 hectares) makes only a very minor contribution to economic activity. Recently, there has been renewed determination by the irrigation industry and various government agencies to resurrect an old vision of turning the region into a major food bowl.

The 2015 Australian Government White Paper on Developing Northern Australia, focused largely on building roads and dams – with $5 billion of concessional loans for infrastructure, $600 million for roads, $200 million for water infrastructure, $100 million for 'beef roads' and $75 million for research, largely for agriculture.

In 2018 the CSIRO released water resource assessments for the Fitzroy (Western Australia), Mitchell (Queensland) and Greater Darwin (Adelaide, Finniss, Mary and Wildman) catchments. The reports were promoted with headline figures highlighting the potential for 400,000 hectares of irrigated crops, $5.3 billion of annual activity and 15,000 jobs. Other such assessments are underway or have been completed for the Flinders, Gilbert, Ord, Roper, Victoria and Gregory catchments.

Although proponents portray the potential scale of irrigated cropping in the North as minor – about 3% of the catchment areas assessed in 2018 – it is proportionately far larger than existing irrigation regions: more than double the irrigated proportion of the Murray-Darling Basin and triple that of the Burdekin catchment. The footprint of irrigated agriculture would be considerably larger than the area irrigated – due to the downstream habitats impacted by water extraction, the loss or degradation of floodplain wetlands, the additional areas cleared for infrastructure and fallow cropping areas and the habitats polluted by nutrient and pesticide runoff. There is nothing modest about the irrigation industry being contemplated for the North.

In playing up the possibilities for irrigated cropping, the public messaging from the CSIRO assessments focused on highly optimistic scenarios and glossed over the more sobering substance of the technical assessments. For all six catchments assessed in 2018, the CSIRO concluded that viable new irrigation developments would require 'challenging combinations' of low-cost infrastructure, high-productivity farms, management of a wide range of risks, and off-farm value-adding. Farm gate revenue would be unlikely to cover the costs of new irrigated development. Other analysts have also found the business case to be marginal at best.

Martuwarra/Fitzroy River, Western Australia
Credit: Nick Covelli

FALLACIES UNDERPINNING THE PROPOSED DEVELOPMENT PATHWAY

No government promoting or facilitating large-scale irrigation developments in the North has published any analysis demonstrating that this is the optimal pathway for development. Nor have they published any analyses demonstrating that the industry is economically viable and ecologically sustainable. They are proceeding project-by-project on the basis of four fallacies.

FALLACY 1: THERE IS PLENTY OF WATER TO SPARE

For the ecosystems adapted to the highly variable flows of the river of the Wet-Dry Tropics, there is no waste. As the Northern Australia Land and Water Taskforce pointed out in their 2009 report on sustainable development, 'All water is fully in use. … even 'wasted' water running out to sea is needed by estuarine systems and near-shore ecosystems'. The rivers, aquifers and floodplains of the North are also already used (or over-used) for many human purposes – sustaining settlements, Indigenous cultures, recreation (including recreational fishing), ecotourism and cultural tourism, commercial fishing, mining and existing agricultural enterprises.

FALLACY 2: LARGE-SCALE IRRIGATION IS ESSENTIAL FOR DEVELOPMENT

There is no evidence of irrigation being crucial for development. Some of the poorest countries have massive water development and some of the wealthiest countries very little. The OECD does not even mention water development in its reports on modernising rural economies.

FALLACY 3: IRRIGATION FAILURES OF THE PAST WON'T BE REPEATED

While it is possible to grow irrigated crops in the Wet-Dry Tropics, history has shown there are major impediments to the achievement of a viable, let alone ecologically sustainable, irrigation industry. If anything, the impediments have grown – new crop pests keep arriving, major input costs (freight, fertilisers, pesticides) are rising, climate change is escalating, environmental carbon stocks are becoming more valuable, and the recognised environmental and cultural values and vulnerabilities of the North are growing.

Australia's 2014 Agricultural Competitiveness Green Paper noted that 'profitability in Australian agriculture is low, particularly given the riskiness of the business'. Policymakers should be wary of the analyses of irrigation proponents for, over and over again, there have been significant divergences between predictions and outcomes.

An unwillingness to scrutinise viability was laid bare in a scathing 2016 analysis by the Western Australian Auditor General of the most recent expansion of the Ord River irrigation scheme, which found the project went ahead in 2009 without a business case or detailed costings, cost 52% more than was budgeted, took three years longer than predicted, did not achieve the cropping targets and did not measure the predicted social and economic benefits used to justify the expansion.

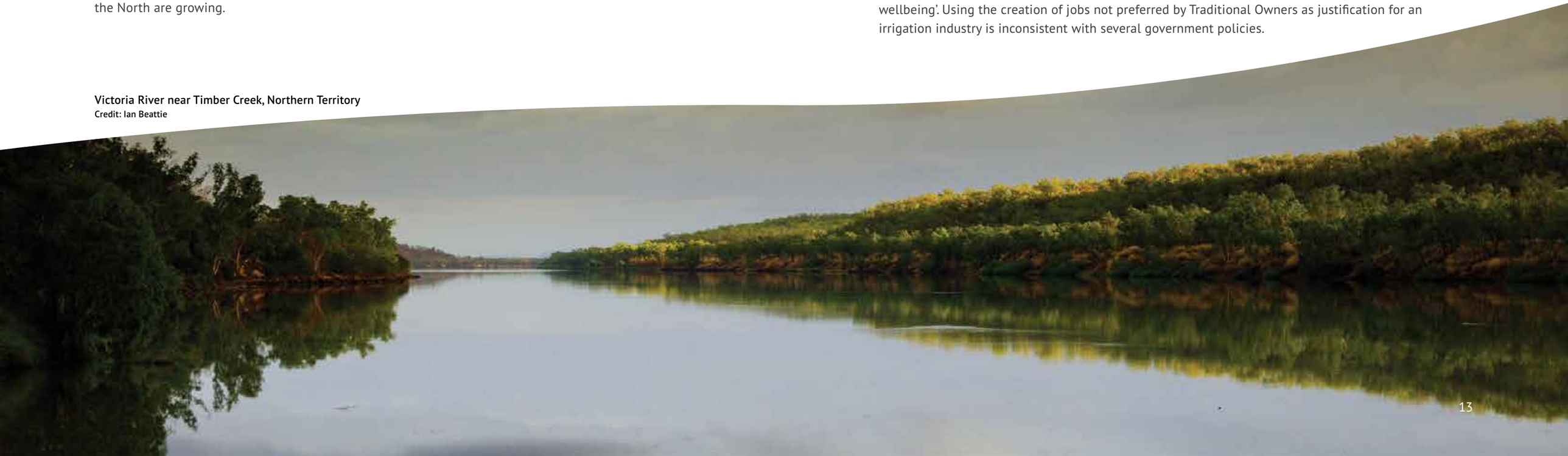
The climate is likely to become even more challenging for cropping in the Wet-Dry Tropics – with rising temperatures, more-frequent hot days, increased evaporation and potentially an increase in the number and severity of extreme rainfall events. Irrigated cropping adds substantially to Australia's greenhouse gas emissions by way of land clearing, water storage and delivery, operational activities, fertilisation and freight. To achieve national emission targets (net zero by 2050) these emissions need to be measured and abated.

Although irrigation proponents call for less environmental regulation, there is increasing recognition that threats in northern Australia are escalating and biodiversity is declining under current laws and policies. More rather than less rigorous protection will be needed to avert extinctions and degradation.

FALLACY 4: IRRIGATED AGRICULTURE WILL BENEFIT THE PEOPLE OF THE NORTH

The typical public benefit claim by the irrigation industry is that it will create thousands of jobs for local people – 2,500 jobs by 2030 says the Northern Territory cotton industry. But the industry is typically an intensive user of land, water and capital, and not of labour. The biggest irrigation scheme in the North, the Ord River scheme, provides fewer than 300 jobs.

More important is the question of whether 'economic growth' equals 'development' and whether the coarse number of jobs is an appropriate measure of public benefit – particularly when it comes to the wellbeing of Indigenous Australians. Among the outcomes sought under the national Closing the Gap policy is that 'Aboriginal and Torres Strait Islander people enjoy high levels of social and emotional wellbeing'. Using the creation of jobs not preferred by Traditional Owners as justification for an irrigation industry is inconsistent with several government policies.



Victoria River near Timber Creek, Northern Territory
Credit: Ian Beattie

5 DESICCATION AND DEGRADATION

WHAT LARGE-SCALE IRRIGATION DOES TO NATURE

Although humans have practised irrigation for more than 5,000 years, 'it has rarely been sustainable', says the CSIRO's Northern Australia Land and Water Science Review of 2009. And yet 'we persistently pretend that it is'. As a dry and drought-prone country with a thin moist margin, highly variable river flows, and weathered, infertile soils, Australia is ecologically and climatically poorly suited to large-scale irrigation. Despite that, most rivers suitable for dams have already been dammed, with a capacity to capture about 23% of annual runoff. The evidence is overwhelmingly that large-scale irrigated cropping has been highly damaging.

The Northern Australia Land and Water Science Review warned that the many problems of irrigation – including salinisation, waterlogging, nutrient depletion and the degradation of surrounding landscapes – typically take a long time to manifest and even longer to ameliorate, if amelioration is even possible. Wetlands are often drowned, drained or wetted much less frequently and floodplains are turned into terrestrial habitats. CSIRO modelling of the potential impacts of proposed dams in the assessed northern catchments reveals likely severe impacts on floodplain wetlands.

An irrigation industry will lead to large-scale land clearing, which destroys habitat and emits greenhouse gases. Approvals for clearing on pastoral properties in the Northern Territory have surged more than 10-fold, from an average of about 1,000 hectares a year in 2010-2015 to more than 20,000 a year in the subsequent six years.

Broadacre irrigated cropping is likely to reduce water quality, potentially risking human and ecological health – due to the industry's substantial use of fertilisers and biocides (herbicides, fungicides and insecticides). Government surveys of the Daly River have detected nine different pesticides in groundwater and dry season flows.

Preventing further land clearing and limiting water extraction will be essential to optimise the resilience of the North to climate change impacts.

POTENTIAL IMPACTS OF IRRIGATION DEVELOPMENTS ON WILDLIFE

The critically endangered largetooth sawfish has shown that the huge volumes of water flowing out to sea during the northern wet season are not wasted, with the survival of the species relying on maintaining the biggest floods of all. In the Fitzroy River and its tributaries, there was moderate or high recruitment in only three of 17 assessed years – and all three were years of exceptional flooding. During the dry season, these sawfish need sufficient water to maintain habitable pools. Even slight deviations from natural flow regimes, at least in the Fitzroy system, could be detrimental.

High flows are also important for barramundi. Modelling of recruitment in the Daly River found that extraction of just 10% of wet season flows would substantially reduce predicted year-class strength across all years. Barramundi are also likely to suffer from pesticide use, which may compromise their immunity and sexual development.

The life histories of many small fish species are also closely linked with the cycles and magnitude of flooding. A productive wet season is probably important for all species for growth and restoration of body condition after the dry season. Maintaining the variability of wet-season flows is important for maintaining diversity, by providing suitable conditions for both wet-season and dry-season spawners. If water levels drop due to extraction, shallow billabongs or creeks, which have high densities and diversity of small fish, are particularly susceptible to drying or declining water quality.

Although banana prawns are caught in the ocean, their catchability relies on freshwater flows. Wet season floods force them to move from their estuarine nurseries into the ocean, where they mature. High flows may benefit them in deeper waters by stimulating coastal production at the base of the food web and increasing turbidity, which helps them avoid predators. Water extraction for irrigation could undermine the migration cue for prawns and undermine the livelihood of many fishers.

Cherabin (freshwater prawns) need large and enduring floods. Water extraction during the wet season could slow the downstream drift of larvae to the estuary or limit the extent of their upstream migration late in the wet season.

Pig-nosed turtle *(Carettochelys insculpta)*
Credit: Daniil Melnikov

6 CUSTODIANSHIP AND CONSERVATION

NEW WAYS OF TURNING AGE-OLD RESPECT FOR RIVERS INTO LAWS

With rare exceptions, Australian water laws and policies do not provide for the holistic protection or management of riverine ecosystems. They do not distinguish between exploited rivers and intact rivers. It is mostly assumed that it is desirable to facilitate irrigated agriculture wherever feasible. This is despite the National Water Initiative specifying that 'surface and groundwater systems of high conservation value' should be identified, and these systems managed 'to protect and enhance those value'. Australia mostly lacks effective policy mechanisms for achieving this, with high values often treated as hurdles for irrigation projects rather than as priorities for protection.

'The tyranny of incrementalism … must end', said then Prime Minister John Howard in 2007 when his government embarked on reform of the Murray-Darling system. But incrementalism remains typical, with many regulatory processes focused on project-by-project, piecemeal assessments. Many hallmarks of poor governance in the Murray-Darling Basin are evident in the Wet-Dry Tropics – in particular, the powerful influence of the irrigation industry and the limited role for Traditional Owners and community stakeholders in decision-making processes.

With rare exceptions, Australian water laws and policies do not provide for the holistic protection or management of riverine ecosystems. They do not distinguish between exploited rivers and intact rivers.

The Northern Territory and Western Australia in particular lack robust, transparent processes for determining water allocations and granting licences. Neither has implemented the requirement under the National Water Initiative for statutory water plans with provisions for the environment. In the Northern Territory, only 28% of licenced water entitlements are based on water allocation plans. Even where there are water plans, these are not binding on decision-makers.

There is widespread community distrust in decision-making processes, and current water laws and policies do not reflect the ways that many people perceive and value rivers. This is particularly the case for Indigenous Australians, whose worldviews are poorly understood and ignored in policy.

Australia has the least formal recognition of Indigenous water rights of any colonised country. The traditional rights to water under the laws and customs of Indigenous Australians still exist – they have not been ceded – but the Australian legal system does not recognise them. Although healthy rivers are essential for maintaining many native title rights, the *Native Title Act 1993* validates water laws regardless of their potential impact on native title. But it doesn't have to be this way – and recent reforms around the world provide examples of alternative approaches.

MECHANISMS TO PROTECT INTACT RIVERS

Protected areas: Australia has one of the lowest continental proportions of free-flowing rivers within protected areas –13% of river length, compared with 17% globally and 28% in South America. It has long been recommended that Australia should establish a representative protected areas network for freshwater ecosystems, as is sought for terrestrial ecosystems, with special protection for substantially intact rivers.

River conservation laws: In 2005, Queensland enacted one of the world's few laws to protect free-flowing rivers – the *Wild Rivers Act 2005,* which enabled the declaration of rivers, prohibited certain types of intensive development within a kilometre of a declared river and provided for management of activities in other parts of the declared area. Although welcomed by some Traditional Owners, it was opposed by others and repealed in 2013. Victoria is the only other Australian state with a law focused on river protection. *The Heritage Rivers Act 1992* provides for the 'protection of public land in particular

The Roper River
Credit: Krystle Wright

parts of rivers and river catchment areas [with] significant nature conservation, recreation, scenic or cultural heritage attributes'. It protects 26 small catchments and river stretches on 18 major rivers. Other river conservation systems exist in the United States, New Zealand, Norway, Finland, Sweden, Spain and Mexico, with more than 1,000 rivers protected in whole or part.

Planning laws: Queensland's *Regional Planning Interests Act 2014*, which replaced the *Wild Rivers Act*, provides a layer of protection for rivers and floodplains that are part of declared 'strategic environmental areas 'by prohibiting or regulating activities such as water storage and broadacre cropping. Western Australia's *Environmental Protection Act 1986* offers the opportunity for river protection through the creation of environmental planning policies that can be put in place to protect any portion of the environment and specify permissible uses and activities.

Cultural heritage laws: Although cultural heritage laws in Australia are notoriously weak and fall far short of the protections specified in the United Nations Declaration on the Rights of Indigenous Peoples, they offer some potential to protect rivers and can apply on any land tenure. In 2020, after the destruction of Juukan Gorge, the Western Australian Aboriginal Affairs Minister refused a proposal to build 10 weirs along the Ashburton River, due to potential impacts on the mythological values of the river, registered as an Aboriginal heritage site.

Environmental laws: Sites can also be protected under the national environmental law if they are national heritage, commonwealth heritage or world heritage sites. The Martuwarra/Fitzroy River is part of the listed West Kimberley national heritage place for its demonstration of 'four distinct expressions of the Rainbow Serpent tradition associated with Indigenous interpretations of the different ways in which water flows within the catchment'. It is currently facing proposals for large-scale water extraction and the Traditional Owners warn that disturbance resulting from this would threaten its national heritage values.

Rights of nature laws: Several countries have adopted these laws, often led by Indigenous peoples, for many of whom rivers are already regarded as beings with rights. In 2008 Ecuador adopted rights for nature in its constitution, and in 2011 an Ecuadorean court ruled that the rights of the Vilcabamba River had been violated by road construction. In 2012, the New Zealand Government and the Whanganui River tribe reached an agreement to recognise Te Awa Tupua (Whanganui River) as a legal person, which can be enforced by a guardian comprising one Māori and one government representative. In 2016, Colombia's Constitutional Court declared the Atrato River to be a legal subject with rights to protection and restoration by the state and ethnic communities, and ordered that a river guardian be appointed.

Martuwarra/Fitzroy River
Credit: Nick Covelli

7 RIVER GOVERNANCE

WHOSE VIEWS, VALUES AND VOICES SHOULD COUNT?

Governance encompasses the following elements, which pivot around questions of power and justice:

- **Rules:** Whose laws and processes apply?
- **Recognition:** Whose values and worldviews count?
- **Authority:** Who makes decisions?
- **Influence:** Who can shape decisions?
- **Entitlements:** Who has rights to water?

In Australia and around the world, there is a growing movement, mostly led by Indigenous peoples, to establish new forms of governance more aligned with their values and forms of governance. In New Zealand, due to treaty settlements, Māori are increasingly recognised as 'co-governance partners' rather than 'stakeholders' across some domains of decision-making about natural resources. They have been changing how rivers are perceived and managed. For example, as a result of three settlement agreements and laws giving effect to those agreements, New Zealand's longest river, the Waikato, and its major tributary, the Waipa, are now subject to co-governance and co-management by the state and five river tribes.

Canada has made progress on involving Indigenous peoples in decision-making. Under the *United Nations Declaration on the Rights of Indigenous Peoples Act (UNDRIP Act)*, which became law in 2021, the government is required to obtain the free and informed consent of Indigenous peoples prior to approvals 'affecting their lands or territories and other resource's, including for the exploitation of water. Canada's governments already have a constitutional duty to consult Indigenous Canadians prior to decisions that could affect their established or potential rights. A 2018 court decision clarified that proper consultation requires 'managing the consultation process in a way that fosters trust as opposed to misunderstanding and betrayal'.

Although progress on governance reform in Australia has been slower than in several other countries, potential pathways are opening up. The National Agreement on Closing the Gap now includes an outcome that 'Aboriginal and Torres Strait Islander people maintain a distinctive cultural, spiritual, physical and economic relationship with their land and waters' (although there is no target specific to freshwater). The negotiation of treaties or settlements, underway in Queensland (initiated in 2019) and the Northern Territory (initiated in 2020), could provide the foundations for developing co-governance arrangements for rivers and water.

8 FOR PEOPLE AND NATURE
THRIVING WITHOUT DESTROYING WHAT PEOPLE TREASURE

WHY AUSTRALIA NEEDS TO REPLACE THE WHITE PAPER

Few would disagree with the desire of governments as expressed in Australia's 2015 White Paper for Developing Northern Australia – that, by 2035:

> 'Governments want northern Australia to be meeting its full potential, to benefit people living there as well as those around the country.'

But the 'full potential' outlined in the White Paper is a meagre and outdated vision for a region of such natural and cultural vibrancy. And the promoted people 'benefits' – the jobs to build dams, plant and plough fields, pick produce, drive trucks – are not those sought by many people.

Although the White Paper says, 'Our north's future will come from its people', the paper was not developed by the people of the North. And according to stakeholder analysis and surveys, large-scale irrigation is not the future desired by most northern Australians.

The White Paper says Australia should 'take advantage of our strengths and our natural advantages'. But large-scale irrigation will threaten many of the 'natural advantages' treasured by people. It would render the North less distinctive and less special.

The North needs a new plan – one that emerges from the region rather than being imposed, and one that delivers on the rhetoric of the White Paper by sustaining the 'natural advantages' of the Wet-Dry Tropics while supporting genuinely sustainable development.

Opposite: Daly River
Credit: Jason Fowler

RECOMMENDATIONS FOR THRIVING RIVERS AND A MODERN ECONOMY

RECOMMENDATION 1. TURN THE POLICY PRIORITY TO RIVER PROTECTION

1.1 DEVELOP LAWS AND POLICIES TO PROTECT HIGH-VALUE RIVERS AND ASSOCIATED HABITATS (WETLANDS, FLOODPLAINS AND AQUIFERS)

With one of the world's great concentrations of free-flowing rivers – an increasing rarity, particularly in tropical areas – Australia has the potential to be a global leader in maintaining and restoring thriving rivers. This is consistent with the central importance of rivers to the lives of many northern Australians – spiritually, culturally, recreationally, economically.

As specified in the National Water Initiative, Australia's governments should identify 'surface and groundwater systems of high conservation value and protect and enhance those values'. Identification of the highest priority unprotected rivers in the renewed National Water Initiative would be an inspirational way to herald a commitment to river conservation. There should be a transparent independent process to determine the highest priority systems for protection taking into account conservation and cultural values and threats.

Protecting entire *systems* – rivers and streams, floodplains and aquifers – will require state and territory governments to enact tenure-blind mechanisms to prohibit harmful activities, consistent with the recommendation in the *Science Statement for Protecting the Kimberley's Fitzroy River* for a buffer zone along the river to exclude 'native vegetation clearing, hydraulic fracturing, mining and large water extraction projects'.

1.2 STRENGTHEN PROTECTION OF CULTURAL HERITAGE AND FACILITATE TRADITIONAL OWNER MANAGEMENT OF RIVERINE ECOSYSTEMS

One foundation of new river laws should be recognition and strong protection of their Indigenous cultural values. This should include articulating the perceptions and values of rivers in Indigenous terms and strictly protecting cultural heritage as identified by Traditional Owners as well as supporting Traditional Owners to sustain their cultural connections and exercise their custodial responsibilities for managing riverine ecosystems.

1.3 STRENGTHEN WATER ALLOCATION PROCESSES TO PREVENT ENVIRONMENTAL AND CULTURAL HARM

Where river systems are not wholly protected, reforms are needed to optimise the sustainability of any water-focused developments, including a requirement for transparent water planning to inform any allocations (as required under the National Water Initiative) and for assessments of cumulative catchment impacts. Also required should be the protection of cultural flows in addition to environmental flows.

RECOMMENDATION 2. APPLY BEST-PRACTICE GOVERNANCE PROCESSES

2.1 ENACT UNDRIP AND NWI GOVERNANCE PRINCIPLES

Governance should be strengthened by enacting relevant principles under the United Nations Declaration on the Rights of Indigenous Peoples and the National Water Initiative. This includes UNDRIP Article 32.2, which requires that the free and informed consent of Indigenous peoples be obtained before the approval of projects affecting their lands or territories and other resources. Relevant requirements under the National Water Initiative include that for statutory water planning with robust processes for determining environmental and cultural flow requirements.

Other elements of sound governance include processes to put communities at the forefront of decision-making and optimise the transparency, evidence base and accountability of decision-making. Northern Indigenous groups have proposed new institutions such as regional, basin or catchment authorities or a water commission that would strengthen governance. Institutions and processes should be codesigned with Indigenous groups, in close consultation with communities and other stakeholders.

RECOMMENDATION 3. REPLACE THE WHITE PAPER WITH A PLAN TO SUPPORT SUSTAINABLE LIVELIHOODS

3.1 REVIEW THE WHITE PAPER AND ASSOCIATED POLICIES AND PROGRAMS

As part of the proposed 'refresh' of the White Paper on Developing Northern Australia, commission an expert review and consult with stakeholders, the public and experts to determine how best to support genuinely sustainable development in the North that is aligned with the aspirations, cultures and skills of Traditional Owners and other northern residents and with broader government commitments such as Nature Positive, meeting climate targets, Closing the Gap and protecting cultural heritage.

3.2 INVEST IN EVIDENCE-BASED AND CO-DESIGNED DEVELOPMENT PATHWAYS

Federal, state and territory governments should invest in the development of new and existing industries in the North aligned with the long-expressed aspirations of people who live there. Existing industries with promise include Indigenous ranger services, tourism, bush products (foods and medicines), arts, carbon farming and small-scale horticulture. Emerging natural capital and nature repair markets may also hold promise. There is no need to accept degradation as a cost of economic development. Co-designing development opportunities with Traditional Owners is essential for achieving goals such as those in Closing the Gap.

The Mitchell Plateau, Kimberley, Western Australia
Credit: Alamy Stock Photo