

# THE FUTURE OF A RIVER: EARTH JURISPRUDENCE AND THE MURRAY DARLING

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Imagine that the Federal Government commissioned an authority to present an *unsustainable* plan for management of the Murray Darling Basin. What might such a plan look like? To begin, the authority might recommend weak or aspirational water quality objectives with no direct enforcement procedures. It would ignore indigenous petitions for cultural water allocations. Its modelling would be designed to ignore known risks such as climate change and underutilise ecological response models on species such as birds, frogs and turtles. Finally, and most importantly, the authority would recommend an allowance for new environmental flows that failed to match the known ecological needs of the ecosystem. With these measures in place, the authority would have fulfilled its mandate to present a plan for the unsustainable management of the Murray Darling Basin.

Such is the fate of the Murray River under the draft Basin Plan.<sup>1</sup> My intention in this article is critically examine aspects of the draft plan from the perspective of an emerging theory of law termed Earth Jurisprudence (or Wild Law).<sup>2</sup> I also intend to provide broader comment on future plans for the management for the Murray-Darling. I begin by arguing that western law is anthropocentric and weighted in favour of human use and development. This analysis provides the framework through which to critique the draft plan and its failure to set sustainable extraction limits or restore ecosystem services in the Murray-Darling. Following this critique, I introduce the theory of Earth Jurisprudence. Earth Jurisprudence advocates the holistic management of ecosystems and recognises the intrinsic value or ecological integrity of nature. I will also discuss modelling techniques that are consistent with Earth Jurisprudence and appropriate for the management of the Murray-Darling.

## Context: Law and Power

The present legal system is supporting exploitation rather than protecting the natural world from destruction by the relentless industrial economy.<sup>3</sup>

Western law is anthropocentric and has developed in such a way as to prioritise human wellbeing over ecological integrity. Albert Einstein defines anthropocentrism as an 'optical delusion of human consciousness' whereby we come to regard 'humanity as the centre of existence.'<sup>4</sup> Anthropocentrism assigns value to human

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<sup>1</sup> The plan can be viewed at Murray-Darling Basin Authority, *Proposed Basin Plan* (2011) <<http://www.mdba.gov.au/draft-basin-plan>>.

<sup>2</sup> See Peter Burdon, 'Wild Law: The Philosophy of Earth Jurisprudence' (2010) 35(2) *Alternative Law Journal* 62 and Peter Burdon (ed), *Exploring Wild Law: The Philosophy of Earth Jurisprudence* (Wakefield Press, 2011).

<sup>3</sup> Thomas Berry, 'Legal Conditions for Earth's Survival' in Mary-Evelyn Tucker (ed), *Evening Thoughts: Reflections on Earth as Sacred Community* (Sierra Club, 2006) 107.

<sup>4</sup> Albert Einstein quoted in Klaus Bosselmann, 'The Way Forward: Governance for Ecological Integrity' in Laura Westra, Klaus Bosselmann and Richard Westra, *Reconciling Human Existence with Ecological Integrity* (Earthscan: 2008) 319.

beings alone or assigns a significantly greater amount of value to human beings than nonhuman entities. It regards humans as the central fact or final aim and end of the universe and views and interprets everything in terms of human experience and values. Finally, anthropocentrism promotes a separation of people from nature and positions us at the imagined centre of the universe. Under this dualistic framework, nature is profoundly vulnerable to human exploitation. There is no reason to protect the environment for its own sake and environmental destruction can be justified if it contributes to human good.<sup>5</sup>

Western law has been profoundly influenced by the anthropocentric and humanist traditions of western culture.<sup>6</sup> It has evolved principally to protect the private property rights and economic interests of human beings.<sup>7</sup> Even regulations and environmental laws have not fundamentally altered the power structure of law or its effective facilitation of economic development. Perhaps the clearest way to make this point is to reflect that despite 50 years of awareness of environmental issues and 35 years of environmental law, all of the important indicators are worsening.<sup>8</sup> At best, environmental laws are merely slowing down the rate of degradation of natural systems.<sup>9</sup> Professor Ian Lowe makes this point as follows:

There is a presumption that any economic development that is commercially viable will go ahead unless a determined individual or poorly funded community group can show against the deep pockets of large organisations and government that it is proven beyond any doubt, even to the most purblind judge, that the consequences would be tragic to the environment.<sup>10</sup>

The specific development orientation of western law emerged in the context of the industrial revolution. Harvard historian Morton Horowitz notes that prior to this period, property rights were underpinned by an 'explicitly anti-development theory' that limited landowners to what courts regarded as natural use.<sup>11</sup> The 'natural use' idea of private property equated to strong trespass law, which barred all uncontested physical entities and nuisance law that prohibited neighbours from indirectly impairing a neighbour's enjoyment of land.<sup>12</sup> In the context of river systems, a landowner could not disturb the natural drainage of land or take water from a river to the extent that it 'diminished its quality or quantity' for landowners downstream.<sup>13</sup>

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<sup>5</sup> Val Plumwood, 'Androcentrism and Anthrocentrism: Parallels and Politics' (1996) *Ethics and the Environment* 1.

<sup>6</sup> The most comprehensive analysis of the intersection between anthropocentrism and law is Klaus Bosselmann, *When Two Worlds Collide: Society and Ecology* (RSVP Publishers, 1999). See also Peter Burdon, *Earth Jurisprudence: Private Property and Earth Community* (PhD Thesis, University of Adelaide, 2011).

<sup>7</sup> Gerry Bates, *Environmental Law in Australia* (Lexis Nexus, 2002) 20.

<sup>8</sup> For updated global statistics on this point see World Watch Institute <<http://www.worldwatch.org>> and the Earth Policy Institute <<http://www.Earth-policy.org/>>.

<sup>9</sup> Ian Lowe, 'The Law and Sustainable Futures' (Paper Presented at Earth Jurisprudence: Building Theory and Practice, Brisbane 16th September 2011). Professor Lowe's presentation can be downloaded at <http://www.griffith.edu.au/conference/wild-law-2011/conference-presentations>.

<sup>10</sup> *Ibid.*

<sup>11</sup> Morton Horowitz, *The Transformation of American Law, 1780-1860* (Harvard University Press, 1977) 32.

<sup>12</sup> Eric T Freyfogle, 'Property Rights, The Markets and Environmental Change in Twentieth-Century America' (2001) 01 *Illinois Public Law and Legal Theory Research Papers Series* 1: 4. Available from SSRN: <<http://papers.ssrn.com/abstract=288994>>.

<sup>13</sup> *Ibid.* 4.

It was quickly recognised that this conception of private property stood in the way of economic progress. To promote development, lawmakers were required to 'materially change the meaning of landownership to facilitate...intensive land uses.'<sup>14</sup> Horwitz comments: 'Law once conceived of as protective, regulative, paternalistic and above all, a paramount expression of the moral sense of the community, had come to be thought of as facilitative of individual desires and as simply reflective of the existing organization of economic and political power.'<sup>15</sup> Fundamental to this shift, was the idea that private property entailed the right to use the land more intensely than had been practised by previous generations. For example, in the context of river systems, communities who once enjoyed water laws that protected natural flow had these removed so that industries could draw more water and even introduce pollutants into the water system. Industrial parties required the right to emit smoke that degraded air quality; to make noise that scared livestock and on occasion to emit sparks which had the potential to set wheat fields on fire. Waterwheels disrupted the migration of fish, tall buildings blocked sunlight.<sup>16</sup> In essence, the legal concept of private property was reconceptualised to promote market growth 'at the expense of farmers, workers, consumers' and the environment.<sup>17</sup>

The fundamental point of this historical detour is that since the industrial revolution our legal systems has been designed to facilitate economic development. While I do not want to suggest that environmental laws and regulations have no affect - their impact is limited to the extent that they challenge the facilitation of economic development. Laws and regulations may tinker at the edges, but they have not yet been designed to challenge this fundamental power structure.

### **The Basin Plan**

The present conflict over the Murray-Darling Basin is an example of how our laws have been designed to facilitate development over environmental sustainability. Decades of chronic overuse have significantly damaged the river (and its tributaries). The Australian Conservation Foundation reports that in less than a century 'water extraction from the Murray-Darling Basin has increased by 500%.'<sup>18</sup> Unsurprisingly, this increase in extraction has caused serious (and in some cases irreversible) ecological harm to wetlands, nesting areas for water birds and fish populations. In some parts of the Basin 'over 90% of floodplain wetlands have been destroyed; only 10% of our native fish population survives; and waterbird numbers have been reduced by 80%.'<sup>19</sup> Bruce Allnut, whose farm draws water downstream on the River Finnis, provides first hand evidence of these environmental impacts:

In the last four years [2006-2010] we have not had any water here. We have not been able to use any river water off our license. We have seen lots of change. The birds and native fish that used to be here are not there now. There used to be lots of turtles but we do not seen hide nor hair of them now. We can only hope they are still there....two million tons of salt have moved

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<sup>14</sup> Freyfogle, above n 12, 4.

<sup>15</sup> Horwitz, above n 11, 253.

<sup>16</sup> Freyfogle, above n 12, 4.

<sup>17</sup> Horwitz, above n 11, 254.

<sup>18</sup> Australian Conservation Foundation, *Restoring the Murray-Darling Basin to Health* (2011) <[http://acfonline.org.au/articles/news.asp?news\\_id=3506](http://acfonline.org.au/articles/news.asp?news_id=3506)>.

<sup>19</sup> Ibid.

down the river, never mind other nutrients. That needs to be flushed otherwise it will build up...til such time that the whole river is useless.<sup>20</sup>

The draft plan is the latest in a series of policy documents and recommendations aimed at setting sustainable development limits on the human consumption of water resources of the Murray-Darling Basin.<sup>21</sup> The document itself is complex and its recommendations reflect the input and lobbying of divergent interests groups. Preliminary assessment has been overwhelmingly negative from both farmers and NGO's,<sup>22</sup> a status which the Murray Darling Basin Authority have interpreted to mean that they have struck an appropriate balance.<sup>23</sup> In contrast to this view, I suggest that the draft plan is weighed in favour of human use and exploitation at the expense of the environment.

One way to assess the environmental credentials of the draft plan (and subsequent recommendations) it to provide some basic factual tests. For ease, these have been listed in table 1 below:

Table 1: *The Murray-Darling Basin Plan*<sup>24</sup>

	<b>Test</b>	<b>Outcome</b>
1	Puts the Murray-Darling on a sustainable footing	Will not provide a sustainable future for the Murray-Darling, especially since it will double groundwater extraction limits to facilitate the mining industry
2	Flushes 2 million tonnes of salt out to sea each year	Falls far short of the very minimum of 4,000GL required to flush 2 million tonnes of salt out to sea
3	Maintains healthy River Red Gum forests and Black Box woodlands	High probability that Red Gum and Black Box forests will die, especially on the Lower Murray
4	Allows waterbirds to nest and breed on a regular basis and rebuild populations	Little or no improvement in waterbird numbers
5	Stops the decline in native fish	Insufficient water for fish to reach floodplain for breeding, fishing industry at risk

Speaking on behalf of seven leading environmental groups, Johathan La Nauze correctly described the draft plan as a 'tragic failure for the rivers, wetlands, towns

<sup>20</sup> Bruce Allnut, *Voices from the Murray Mouth* (2011) <[http://acfonline.org.au/articles/news.asp?news\\_id=3384](http://acfonline.org.au/articles/news.asp?news_id=3384)>

<sup>21</sup> For a useful history see Hawke Research Institute, *Eco-Social Sustainability in the Murray-Darling Basin* (2010) <<http://www.unisa.edu.au/hawkeinstitute/research/ecosocial/eco-case-study.asp>>.

<sup>22</sup> ABC News, 'Murray Plan Receives A Chorus of Criticism' 2 December 2011 <<http://www.abc.net.au/news/2011-12-02/murray-plan-receives-a-chorus-of-criticism/3710356>>

<sup>23</sup> Ibid.

<sup>24</sup> Parts of table reproduced from Friends of the Earth, 'Zero Out Of Ten For Draft Basin Plan' 28 November 2011 <<http://www.melbourne.foe.org.au/?q=bmc/media/28nov11>>. A comparable checklist was compiled by the Australian Conservation Foundation, see 'ACF's key tests for the Murray-Darling Basin Plan' 18 August 2011 <[http://www.acfonline.org.au/uploads/res/Basin\\_Plan\\_briefing\\_paper-18-08-11.pdf](http://www.acfonline.org.au/uploads/res/Basin_Plan_briefing_paper-18-08-11.pdf)>.

and communities of the Murray-Darling Basin.<sup>25</sup> This assessment is supported by agricultural economist Professor Kevin Parton who argues that the biggest loser from the draft plan is the environment: 'The science is uncertain, but it does suggest that a minimum of 4,000 gigalitres would need to be returned to the river system each year to achieve minimum environmental benefits.'<sup>26</sup> The 2,750 gigalitres reduction proposed under the plan<sup>27</sup> falls well short of this target. Further the target is contrary to section 3 of the *Water Act 2007* (Cth) which aims to provide 'environmentally sustainable levels of extraction and protect and restore ecological values and ecosystem services.'<sup>28</sup> Importantly the Act provides no process for effectively determining the assets, functions, productive base and outcomes that should not be compromised.<sup>29</sup>

Further to these concerns, the CSIRO has released a report that highlights major flaws in the modelling used to develop the draft plan.<sup>30</sup> Of particular concern is their findings that climate change has not been accounted for in the modelling<sup>31</sup>; important ecological response models and expert opinion have not been fully utilised<sup>32</sup>; and that the authority have used compromised ecological targets that allow for continued decline of indicator sites.<sup>33</sup>

### Earth Jurisprudence: An Ecocentric Perspective

Earth Jurisprudence is an emerging theory of law that stresses human interconnectedness and dependence with the natural world.<sup>34</sup> It argues that recognition of human interconnectedness with nature is a prerequisite for ecological sustainability and should be recognised as a foundation of our legal system. To this end, Earth Jurisprudence seeks to catalyse a paradigm shift in law from anthropocentrism to the ecocentric concept of Earth community. This term refers specifically to two ideas. First, human beings exist as one interconnected part of a broader community that includes both living and nonliving entities. Second, the Earth is a community of subjects and not a collection of objects.

While Earth Jurisprudence is a relatively new theory, it builds on the rich intellectual tradition of deep ecology, social ecology and Aldo Leopold's 'land ethic'. As described variously in these disciplines, the Earth is interconnected whole and living

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<sup>25</sup> Friends of the Earth, above n 24. The environmental groups mentioned consist of Friends of the Earth, Inland Rivers Network, Nature Conservation Council of NSW, Central West Environment Council, Fair Water Use Australia, National Parks Association of NSW and The Wilderness Society Sydney.

<sup>26</sup> Kevin Parton, *Who's the Biggest Loser in the Draft Basin Plan?* (2011) <<http://alumni.csu.edu.au/news/374-whos-the-biggest-loser-in-the-draft-basin-plan>>.

<sup>27</sup> Murray-Darling Basin Authority, above n 1, 24.

<sup>28</sup> This requirement is repeated in the purposes and content of the basis plan. Section 23(1) requires the plan to reflect 'environmentally sustainable levels of take.' One possible explanation for this failure concerns section 4 of the *Water Act 2007* (Cth).

<sup>29</sup> Alex Gardner, 'Optimising the Future of the Murray-Darling Basin' (Paper presented at Water Law & Policy Conference, ANU, 1 December 2011).

<sup>30</sup> WJ Young et al, *Science Review of the Estimation of an Environmentally Sustainable Level of Take for the Murray-Darling Basin* (2011) <[http://download.mdba.gov.au/proposed/CSIRO\\_ESLT\\_Science\\_Review.pdf](http://download.mdba.gov.au/proposed/CSIRO_ESLT_Science_Review.pdf)>

<sup>31</sup> *Ibid* 3.

<sup>32</sup> *Ibid* 17.

<sup>33</sup> *Ibid* 19.

<sup>34</sup> See Cormac Cullinan, *Wild Law: A Manifesto For Earth Justice* (Green Books, 2003).

systems are Holon's. This means that they have a dual nature, both as systems and subsystems – they are wholes in themselves and simultaneously, integral parts of larger wholes. Human beings are subjects and have value both as individuals and as part of a greater whole called the Earth community. This is true also for non-human animals, rivers, trees and oceans.<sup>35</sup>

A holistic description of nature 'points towards the necessity of putting all those ecological correlations and networks, of which humankind is only "one" aspect, into the centre of our thoughts and not humanity.'<sup>36</sup> To this end, the concept of Earth community advocates a 'shift of the centre of human thought about humans to the network of interrelations between humans and nature.'<sup>37</sup> Importantly, this reasoning does not deny the moral status of human beings or claim that all forms of non-human nature have moral equivalence with humanity.<sup>38</sup> Instead, it seeks to shift our focus away from hierarchies and asserts that all components of the Earth community have value.

Earth Jurisprudence offers a unique perspective on the Murray-Darling debate. It rejects the conventional focus on rights as between states<sup>39</sup> and attempts to pit agriculturalists against environmentalists. Both approaches maintain a dualistic perspective of nature and fail to view the Murray-Darling as an interconnected whole which supports both human and non-human communities. In contrast to conventional laws that are weighted toward development, the fundamental starting point for Earth Jurisprudence is the 'ecological integrity'<sup>40</sup> of the Murray Darling itself. Laura Westra describes ecological integrity as follows: 'Among the most important aspects of integrity are the autopoietic (self-creative) capacities of life to organize, regenerate, reproduce, sustain, adapt, develop, and evolve over time at a specific location.'<sup>41</sup> Thus ecological integrity defines the evolutionary and biogeographical processes of a system as well as its parts or elements at a specific location. Another aspect, discussed by James Karr in relation to water is the question of what spatial requirements are needed to maintain native ecosystems.<sup>42</sup>

Further, ecological integrity is both 'valued and valuable as it bridges the concerns of science and public policy.'<sup>43</sup> In regard to the Murray-Darling this approach would

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<sup>35</sup> Berry, above n 3, 149.

<sup>36</sup> Bosselmann, above n 6, 7.

<sup>37</sup> Ibid.

<sup>38</sup> Konrad Ott, 'A Modest Proposal about How to Proceed in Order to Solve the Problem of Inherent Moral Value in Nature' in Laura Westra, Klaus Bosselmann and Richard Westra (eds), *Reconciling Human Existence with Ecological Integrity* (2008) 48. Ott argues that the division of the moral community into subclasses is necessary 'since any environmental ethics needs a basic conception for conflict resolution which can meet different types of conflicts.'

<sup>39</sup> See for example, Adelaide Now, 'SA Premier Jay Weatherill considers River Murray challenge to High Court' 7 December 2011 <<http://www.adelaidenow.com.au/news/south-australia/sa-premier-jay-weatherill-considers-rivery-murray-challenge-to-high-court/story-e6frea83-1226211522824>>

<sup>40</sup> This concept has been developed principally by the Global Ecological Integrity Group <<http://www.globalecointegrity.net/>>.

<sup>41</sup> Laura Westra, 'Ecological Integrity' in Carl Mitcham (ed), *Encyclopedia of Science, Technology and Ethics* (Macmillan Reference) 575.

<sup>42</sup> James Karr, 'Protecting Ecological Integrity: An Urgent Societal Goal' (1993) 18(1) *Yale Journal of International Law* 297.

<sup>43</sup> Laura Westra, 'Ecological Integrity and the Aims of the Global Ecological Integrity Project' in David Pimentel, Laura Westra, and Reed F. Noss (eds), *Ecological Integrity: Integrating Environment, Conservation and Health* (Island Press, 2000) 20. One example of ecological integrity in legislation is section 101(a) of the United States *Clean Water Act* 1972 which has its objective 'to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.'

require legislators to adopt an effective mechanism for measuring the environmental sustainability and ecological restoration of the river. This is also a requirement under section 21(4) of the *Water Act 2007* (Cth). One potential model that is consistent with Earth Jurisprudence is the multimetric Index of Biological Integrity (IBI) developed by Karr.<sup>44</sup> Karr defines ecological integrity as 'the sum of physical, chemical, and biological integrity.'<sup>45</sup> Consistent with this definition, biological integrity refers to the 'capacity to support and maintain a balanced, integrated, adaptive biological system having full range of elements (genes, species, and assemblages) and processes (mutation, demography, biotic interactions, nutrient and energy dynamics, and metapopulation processes) expected in the natural habitat of a region.'<sup>46</sup>

Professor Brendan Mackey contends that this model is a verifiable method for ecosystem management that is directly applicable to the Australian landscape.<sup>47</sup> Indeed, programs such as the IBI allows scientists to measure the extent to which biota deviates from verifiable integrity levels that are calibrated from a baseline condition of wild nature.<sup>48</sup> Degradation or loss of integrity is thus any human-induced positive or negative divergence from this baseline standard.<sup>49</sup> The importance of modeling like this is that it views river systems as integrated wholes – rather than fragmented parts, separated by human communities and political boundaries. Further, the modeling allows scientists to measure the extent to which an area has deviated from both its 'wild condition' and advise on steps required to remedy an ecosystem that had been detrimentally impacted by human activity. Finally, if given appropriate legal status, 'ecological integrity' recognises the intrinsic value of ecosystems and can help curb the excess of human development and exploitation of nature.

Importantly, some agriculturalists and irrigators along the river are also advocating an integrated and holistic vision for the management of the Murray Darling.<sup>50</sup> The spirit of Earth Jurisprudence is embodied in statements like this from farmer Bruce Allnut:

If we don't look after this whole system, all the way through it comes out and flushes we are killing all of it off. Not just our farming, but if you do not have a healthy environment, you do not have a healthy community and you do not have agriculture...without healthy rivers, we do not have a future. The Ngadjuri people say that the river and the land are one and they are. Without the water that is necessary, the land is useless.<sup>51</sup>

This is supported by Tom Keelan, whose winery Langhorne Creek, utilises some of the most efficient irrigation in the Murray-Darling Basin:

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<sup>44</sup> See James Karr and Ellen Chu, *Restoring Life in Running Waters* (Island Press, 1999).

<sup>45</sup> *Ibid* 40-41.

<sup>46</sup> *Ibid*.

<sup>47</sup> Brendan Mackey and K Rakhyun, 'Promise the Earth on the Necessary Relationships Between Earth System Science and International Environmental Law' (Paper Presented at Earth Jurisprudence: Building Theory and Practice, Brisbane 16th September 2011). Professor Mackey's presentation can be downloaded at <http://www.griffith.edu.au/conference/wild-law-2011/conference-presentations>.

<sup>48</sup> James Karr, 'Ecological Integrity and Ecological Health are not the Same' in Peter Schulze (ed), *Engineering Within Ecological Constraints* (National Academy Press, 1996) 96

<sup>49</sup> Westra, above n 43, 21.

<sup>50</sup> See also ABC Rural, 'What the Plan Might Mean for Irrigators' 28 November 2011 <<http://www.abc.net.au/rural/telegraph/content/2011/s3378251.htm>>.

<sup>51</sup> Bruce Allnut, *Voices from the Murray Mouth* (2011) <[http://acfonline.org.au/articles/news.asp?news\\_id=3384](http://acfonline.org.au/articles/news.asp?news_id=3384)>

As an irrigator I see the necessity for us to be here long term, not short term. We are a family business and we want our children to be in this business. The only way that can happen is if we irrigator from the river Murray. The new plan will have impact on us as irrigators, however, as an irrigation community we feel that here is no point giving everyone the water they require but not having a river that is flowing in five years time...we need to put the environment first and structure our irrigation practices around that...we have been taking too much for too long and it has to stop.<sup>52</sup>

Comments like these highlight the interconnected nature of ecosystems and the great need to redress the environmental harm caused by the historical over-allocation of water to inefficient uses such as cotton or rice production.<sup>53</sup> They also demonstrate that some irrigators are altering their practices to match the ecological needs of place.<sup>54</sup> This process will be aided by the provision for water buyback in the draft plan to help irrigators adjust to the changes necessary to provide a more sustainable Basin.<sup>55</sup>

## Conclusion

In conclusion, this article has argued that our laws are anthropocentric and favour development over ecological integrity. The draft plan for the Murray-Darling reflects this orientation and fails to provide environmentally sustainable levels of extraction or restore ecosystem services. More plainly, the draft plan ensures the slow death of the Murray-darling and associated communities (both human and nonhuman). In response this article advanced an ecocentric analysis, derived from the philosophy of Earth Jurisprudence. Earth Jurisprudence advocates the concept of Earth Community as an alternative paradigm for law and recognises the intrinsic value of ecosystems. This alternative focus offers a unique holistic insight into the management of the Basin and suggests modelling founded on the principle of ecological integrity. Ultimately this article concludes that either humans will adjust their practices to match the ecological needs of the environment or both will perish together. This choice is that simple and ours to make.

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<sup>52</sup> Tom Keelan, *Voices from the Murray Mouth* (2011) <[http://acfonline.org.au/articles/news.asp?news\\_id=3384](http://acfonline.org.au/articles/news.asp?news_id=3384)>

<sup>53</sup> For a historical account see SA Memory, *Irrigation and exploitation: Cotton and Rice* (2010) <<http://www.samemory.sa.gov.au/site/page.cfm?u=1368>>.

<sup>54</sup> For a full exploration of this point see Peter Burdon 'What is Good Land Use? From Rights to Responsibilities' (2010) 34(3) *Melbourne University Law Review* 708. See also Wes Jackson, *Consulting the Genius of the Place: An Ecological Approach to a New Agriculture* (Counterpoint, 2010).

<sup>55</sup> See Appendix B, Murray-Darling Basin Authority, *Proposed Basin Plan* (2011) <<http://www.mdba.gov.au/draft-basin-plan/draft-basin-plan-chapter-summary/appendix-b>>.