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From Integration to Intersectionality: A Review of Water Ethics

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ABSTRACT: The field of water ethics focuses on the judgments affecting water use and decision making, as well as their normative justification. These justifications can take many forms. Consequently, water ethics grapple with philosophical considerations, law, custom, religion, and the practical options available for accessing or distributing water in different contexts. Increasingly, the field also includes active academic support for communities seeking water justice. This review examines these dynamics in three steps. The first section provides a brief history of water ethics as a distinct field of inquiry. It highlights how philosophical approaches to water ethics have been in tension with the use of water ethics to support integrated water resources management. The second section reviews scholarship from multiple disciplines that overlap in their concern regarding ethical relations to water and different ways social norms are justified. This scholarship has pushed the field of water ethics to reflect more critically on what constitutes justification given the diversity and plurality of water norms. The third section examines how the obligations entailed by water ethics are acted upon by scholarly and community initiatives seeking water justice. Here, the article focuses on how the recognition of multiple vectors of inequality has led to a shift towards intersectional ethics. A short conclusion offers no prescriptions but rather encouragement for continued appreciation of how this subfield helps reframe and address urgent water concerns.

KEYWORDS: Water, ethics, values, justice, intersectionality

INTRODUCTION

Water's necessity for life is often emphasized. Despite the value placed on it, however, global assessments consistently remark on the inequalities in access to safe, reliable water. The 2019 World Water Development Report identified how multiple forms of inequality intersect with each other across race, ethnicity, gender, class, and colonialism, and highlighted how these inequalities are intensified by climate change impacts on water security and vulnerability (UN Water, 2019). The 2020 World Water Development Report made similarly unambiguous links: "Poverty, discrimination and vulnerability are closely related and typically intersect" (UN Water, 2020: 6). In the 2021 report, these inequalities were connected explicitly to debates about water values. That report, titled "Valuing Water", stated: "contradictions between water-related values exist, and research is increasingly interested in understanding how and why diverse groups within and among societies regard a seemingly identical substance very differently" (UN Water, 2021: 98).

The idea that water is a straightforward substance over which value differences are hashed out is one that ethicists like Zenner (2019) have argued does not appreciate the ways that recognition of value pluralism needs to be complemented by recognition of how water can be, and often is, a different kind of thing for different people. As Vogt and Walsh (2021) have argued, water's heterogeneity across cultures is not easy to parse into strict dichotomies; rather, it requires understanding how different ways of knowing water co-exist – sometimes uneasily – with each other. The challenge of knowing water and

making decisions about it amid cultural diversity and water's plurality has practical impacts on which values are recognised, which are not, and how they are weighted in decision making (Brugnach and Ingram, 2012). These are matters of concern that occupy the field of water ethics.

In broad terms, water ethics focuses on the practical judgments affecting water and their normative justification. These judgments arise in many sites of decision-making: laws and policies, management plans, community consultations, social protests, and across governance structures among others. As Boltanski and Thévenot (2006) show, justifications for different judgments are often made through appeals to higher-order principles, such as notions of a common good or appeals to ultimate values. They can also include articles taken on faith, or belief; what Rorty (1989) described as the 'final vocabularies' of metaphysics or religion. This complex terrain has given rise to a rich field of inquiry into water ethics, a field that spans multiple disciplines and involves numerous approaches to moral concerns: from consequentialist notions that what is right depends on the effects of actions, to deontological claims that the good is achieved by discharging one's duties or obligations, and to virtue ethics anchored in considerations of character, like the courage needed to confront oppression. Water ethics, however, are not confined to these dominant western traditions. Water ethics also includes study of the social and cultural norms affecting water-use practices in multiple religions, forms of relationality and kinship held by Indigenous peoples, feminist refusals of domination and commitments to care, ecological and relational values, and the increasingly complex conditions of decision making presented by climate change and other anthropogenic drivers of environmental change. For many scholars, appreciating diverse ethical commitments also justifies active alliance – rather than mere study – of normative concerns in efforts to achieve water justice.

As this review shows, the literature on water ethics has multiple academic and policy sources that jostle for position regarding how best to articulate water's value. To organise this literature, the first section provides a history of water ethics that highlights two sources of its emergence as a distinct field of inquiry: its academic impetus and political efforts to develop a water ethic befitting integrated water resources management (IWRM). The second section reviews scholarship from multiple disciplines that overlap on the study of how social relations to water form particular moral ecologies – that is, sited arrangements of material, social, and economic conditions with watery environments. The third section examines how water scholars have begun applying ethics within scholarship organised to support calls for water justice. This shift is often accompanied by calls for intersectional ethics not unlike the growing appreciation of different vectors of inequality in the World Water Development Reports.

Calls for intersectionality explicitly recognize how "race, class, gender, sexuality, ethnicity, nation, ability and age operate not as unitary, mutually exclusive entities, but as reciprocally constructing phenomena that in turn shape complex social inequalities" (Collins, 2015: 2). The structure of this review is not meant to imply a trajectory from 'integration' to 'intersectionality'. Rather, it is to critically situate how appeals to coordinating principles, such as integration, are not the only options for justifying perspectives on how to ethically coordinate complex water challenges. As Harrington et al. (2023: 6) argue, an intersectional approach has significant strengths owing to its refusal to reduce analyses of water inequalities to singular or homogenous experiences and to instead treat "social positions as inherently fluid, plural, and relational". As Brown et al. (2023: e609) argue, addressing intersectional concerns means that inequalities owing to gender, race, poverty, and ethnicity (among others) must be situated with respect to how those most marginalised in terms of material access to water are also more likely "to be members of marginalised groups who might also be without political capital".

One axiom of the water ethics literature is that value judgements are unavoidable in water use decisions: from choices about which criteria to employ in assessing environmental flows to the design of water sharing mechanisms based on religion, economics, equity, or rights (Brown and Schmidt, 2010). Reviews of water ethics share this axiom since they build arguments about how to understand the field; Schmidt and Peppard [Zenner] (2014), for instance, focuses on how water ethics matter to debates over human impacts on the planet while Grunwald (2016) focuses on how discourse ethics inspired by Jürgen

Habermas's notion of deliberative democracy provide a way to understand value conflicts. Given this, it is important to be explicit that, as this article reviews water ethics, it too makes judgments as it builds the case that a shift in approaches to water values is underway. Inevitably, these judgments render it partial. This partiality, however, is not set off stage. It is built into the article's argument that, as numerous World Water Development Reports highlight, integrative responses to water challenges requires a decision-making framework capacious enough to recognise, and ethically address, intersecting inequalities.

WATER ETHICS: PHILOSOPHY AND PRACTICE

Characterising the norms affecting water in terms of 'water ethics' is a relatively recent development in comparison to longer histories of how values coevolved in complex social and environmental contexts. As a distinct field, water ethics came to prominence late in the second half of the 20th century and paralleled, but was not always in conversation with, the field of environmental ethics that emerged in the wake of western European and North American environmental movements. Nelson (2003) argued that part of this disjunct was an outcome of how environmental ethics focused on atomistic and individualised concerns through metaphors of matter, such as whether non-human animals or species have intrinsic value. This, Nelson claims, placed water's complex and fluid relations in a kind of metaphysical blind spot. But this divide should not be drawn too sharply given the traffic between water ethics and environmental philosophy. When Postel (1992) called for a new water ethic, for instance, she drew on American ethicist and ecologist Aldo Leopold to extend his famous 'land ethic' to water. Likewise, Feldman's (1991) underappreciated examination of the ethics underpinning water management in the United States put water squarely within debates of environmental philosophy. What different sources of water ethics identify more clearly, however, is how the field is not only interested in philosophical concerns but also in the practical judgments, and their effects, of decisions affecting water. This practical orientation of water ethics is important to flag early owing to how dominant frameworks of governance and management sought to relate ethical concerns with the project of integrated water resources management. This section reviews how both practical and philosophical concerns resulted in both a distinct field of water ethics and an effort through the 1990s and early 2000s to develop a water ethic for IWRM.

Between equity and IWRM

Combined concern with water practices and their justification animated key works in water ethics that focused on how laws, policies, and norms affect concrete concerns of equity. Ingram et al. (1986: 176) confronted the notion that water belonged to the "white man's west" in the United States by showing how prioritising equity could cut through competing, often confusing principles and water rights that served those in power at the expense of others. Their analysis came amidst legal and political scholarship reinvigorating the idea that water is a social good to which community values matter (Ingram and Oggins, 1992; Sax 1969, 1994; Freyfogle, 1996). Butler's (1986) call for a new water ethic likewise critiqued single-minded emphasis on efficiency in favour appreciating multiple social values affecting equity. Interrogating efficiency, and the justification it gave to cost-benefit analysis, soon became part of showing how the latter emerged to commensurate competing values through politically accepted notions of objectivity (Kysar, 2010). For instance, cost-benefit analysis drew on a utilitarian ethic that began in natural resource conservation policies that were designed to advance an ethnocentric view of the 'public' in the United States that excluded Indigenous peoples (Schmidt, 2017).

Competing values are not always of the same kind, and efforts to treat them as such require a common metric to make them commensurate with one another. In her classic study of water bureaucrats, engineers, and Native Americans in the American west, Espeland (1998) highlighted how values were often incommensurate with one another. In this case, value differences did not boil down to different

combinations of philosophical or practical judgments. They also weren't always legible across cultural difference. Rather, they issued from how water was situated within broader forms of life – technologies, laws, languages, customs, histories, genders, institutions, and infrastructures (to name a few factors) – that influence how notions of value and multiple relationships to water are configured (Strang, 2004; Feldman, 2007). Ioris (2012) argued that these factors positioned water values in social and environmental contexts and also rendered them plural, since there are multiple such contexts. Similarly, ethical concerns are also linked to how existing rights regimes, hydrology, economic frameworks for decision making, and place-based concerns bear on considerations of 'water and fairness', a topic taken up in the late 1990s and early 2000s by social psychologists (e.g. Syme et al., 1999, 2008). Appreciating the complexity of water values requires recognizing those values are not pre-given facts over which philosophical or practical differences regarding ethics play out. Instead, the value of water is at once cultural, political, economic, religious, technical, scientific, and ethical – what anthropologists term a 'total social fact' (Orlove and Caton, 2010).

Efforts in the 1980s-90s to recover community values for water, and notions of water as a public good, were also confronted by larger ethical debates. One debate was over the valorisation of individual preferences as expressed through market transactions, or what Anderson and Leal (1991) termed 'free market environmentalism'. This was not a debate confined to the water sector. Across debates over sustainable development in the 1990s there was constant tension over the extent to which free markets could deliver both efficient outcomes and environmental relief (see Bernstein, 2001). In the water sector, the 1992 Dublin Principles became a prominent point of contention owing to their role in aligning water with sustainable development (Conca, 2006). The Dublin Principles placed the principle of water as an economic good at the base of value for ecosystems, development, and the gender challenges of the water sector (Goldman, 2005). For water ethics, the influence of the Dublin Principles involved more than just recognition that water is an economic good; it also included acceptance of normative practices that categorise different values of water through a common metric that rendered them comparable to one another. In this case, economic taxonomies provided the common metric characterising different values in terms of use, exchange, aesthetic, recreational, non-market considerations, and the future (Hanemann, 2006). Less well acknowledged, however, is that tensions between individual preference satisfaction and community values in the Dublin Principles also prompted explicit debate over water ethics in IWRM.

In 1997, UNESCO launched its World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) with a specific sub-group created on water. In 2000, John Palmer (2000) chaired the publication of the COMEST report on the ethics of freshwater by noting six core ethical principles: human dignity, participatory decision making, solidarity, human equality, the common good, and stewardship (or wise use). Palmer's report, (aka. Lord Selborne's report) emphasised the democratic management of water as common property and argued that "solutions for the sake of pure economic efficiency, such as the privatization of water rights and their transferability, may well end up as unsustainable" (Palmer, 2000: 32). The report also states that: "privatization of the vendible aspects of water can result in single-purpose planning and management, which contradicts the ethic of integrated water resources management" (Palmer, 2000: 29). Here, the ethic of IWRM is viewed as consistent with the multi-purpose planning and management norms that involved attempts to address the many different types of uses of water for irrigation, energy, industry, cities, sanitation, ecosystems, and so on. Tensions remained, however, owing to how the treatment of water as an economic good within IWRM was portrayed as consistent with other ethical considerations.

As IWRM ascended to near hegemony in the 1990s and early 2000s, UNESCO sought to use the ethic of IWRM to shore up political conflicts through attention to values (cf. Conca, 2006; Molle, 2008). Through these efforts 'water ethics' took on a political valence in the sense that selective attention to particular values identified IWRM as the natural forum for resolving conflicts rather than itself a politically and ethically loaded decision making framework. This effort was explicitly supported by some academic

publications. In 2000, for instance, Jerome Delli Priscoli (2000: 627) wrote in his role as editor-in-chief of the journal *Water Policy* that the "search for integrated and multi-purpose river basin and watershed management, itself, is an outward social manifestation of the life long growth process of searching for integration". Further, he argued, this search is an outcome of the universal experience of leaving the comfort of the watery womb and the subsequent "challenge of overcoming a sense of being alone and being cut off" (Priscoli, 2000: 627). Priscoli's claims are historically and ethically unpalatable: the multi-purpose river basin agenda of IWRM is not an artefact of the human condition but of ethnocentric, settler colonial conservation policies in the early 20th century United States; these policies were subsequently forwarded through international development programs and, ultimately, provided the basis for 'integration' at the 1977 UN Conference on Water in Mar del Plata (Ekhbladh, 2010; Schmidt, 2017). My claim is not that UNESCO's 'water ethics' discourse was political while others are not. Rather, the claim here is that attention must be paid to the political contexts in which water ethics are articulated. As noted above from Ioris (2012) the position of values in different social relations matter.

Setting aside Priscoli's idiosyncratic view about the moral trauma of being born, it is important to flag his influence because he subsequently co-edited a 14-volume series on water ethics for UNESCO that was published in 2004. In the overview essay to that series, Priscoli et al. (2004) position water ethics across personal, communal, and international scales to argue that the deep plurality of water values across religious traditions, legal norms, and technological practices make water ethics essential, but also distinct from other ethical fields. Further, they argue, it is critical to appreciate the role of multiple environmental, social, and religious ethics in water-use decision making but, as they stress, not to enforce one cultural approach to values over others (Priscoli et al., 2004). The essays comprising the collection similarly do not advance any consistent view but rather are organised to provide insight into contexts in which values and ethics matter across a series of topics central to IWRM: ecology, finance, history, women, groundwater, and institutions among others (Acreman, 2004; Aureli and Brelet, 2004; Barraqué, 2004; Hassan, 2004; Llamas, 2014; Tenière-Buchot, 2004). Complementing the series was a follow-up collection by Llamas et al. (2009) that sought to further consolidate water ethics with respect to the practical demands of water management and governance.

UNESCO continues to pursue water ethics. The 2004 series on water ethics was followed up seven years later by Liu et al. (2011), who expanded further on principles of human dignity and a healthy environment to connect water ethics to principles of polluter pays, user pays, and the right to water, which had been passed by the UN in 2010. The human right to water and sanitation was, as Schmidt (2012) argued, entangled with utilitarian ethics, practical appraisals of the global water system, and prevailing governance concepts like water scarcity and security. In 2018, UNESCO's World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) extended water ethics to align freshwater values to those affecting the ocean and coastal areas. It was frank in its position and argued for a "holistic approach to water ethics" that shifted "from an *anthropocentric* to a more *ecocentric approach* based in part on principles of equity while recognizing cultural and ecosystem diversity" (World Commission on the Ethics of Scientific Knowledge and Technology, 2018: 4, original emphasis).

From integration to pluralism

One takeaway from the proliferation of principles by UNESCO's reports on water ethics is the unlikelihood of any single normative framework capturing water's multiple values. This is not an insight unique to water ethics but does help situate the broadening academic approach to water ethics that paralleled UNESCO's efforts to shore up IWRM through the late 1990s and early 2000s. For instance, at the turn of the millennium, Harremoës (2002) argued that considerations of equity must be complemented by ecological concerns in water ethics. Hydrologists Falkenmark and Folke (2002) argued that linking social and ecological systems required a form of 'hydrosolidarity' to underpin water ethics. Although they shared with IWRM the organisation of water norms at the catchment scale (or watershed, or river basin), Falkenmark and Folke (2002) advanced a co-evolutionary view of values as themselves sited and uniquely

adapted owing to the relations of socio-hydrology that take shape in particular places. Their approach, which aligned more clearly with adaptive management techniques and norms of resilience, came at a time when enthusiasm for IWRM by formerly significant backers like the World Bank (2004) was also waning. As this section considers, parallel efforts to appreciate plural water values subsequently characterises water ethics.

Recognizing plural values in water ethics points to divergence from the philosophical model of applied ethics. Rather than seeking to apply ethical principles to particular cases, as in applied ethics, Schmidt and Shrubsole (2013: 368) argued what is typically needed for water ethics is "a way to judge which principles to employ in particular circumstances". Likewise, Gerber's (2003) engagement with the art of Basia Irland points to how the long-critiqued naturalistic fallacy – deriving a moral 'ought' from an empirical 'is' – needs to be rethought with respect to the values of harmony and reciprocity enabled by water itself. These reciprocal relations operate at multiple scales. They have also generated numerous attempts to organise multiple value concerns affecting water in reference to equity. Whiteley et al. (2008) argued for priority to be assigned to how multiple issues of equity are organised with respect to place and identity. Chamberlain (2008) argued that religious traditions – Abrahamic, Asian, Indigenous – must also be considered owing to the centrality of faith traditions and their influence on water. So too forms of spirituality outside of the dominant world religions, such as the water ethics of paganism and animism (Shaw and Francis, 2008). For their part, Brown and Schmidt's (2010) edited collection attempted to organise disparate works in water ethics with respect to different normative positions, such as claims of human dominion, utilitarianism, common-pool resources, community, and calls like those of Falkenmark and Folke to think about norms in terms of complex systems. Environmental journalists, like Barnett (2011) added further to the call for a new water ethic to confront existing water ethics that normalise overuse of water at the expense of ecology.

As water ethics established itself as a sub-field it expanded on joint concerns with equity, ecology, and plural values. For instance, Feldman and Ingram (2009) highlighted how water ethics demanded appreciating the multiple ways in which water is known by individuals and societies. West (2007) argued that it is also critical to consider water ethics at different scales, such as the region, in order to understand how particular laws and policies might intersect with local ethical practices. For their part, hydrologists also increasingly began to recognise the importance of local water ethics already at work (Silliman et al., 2008). Multiple ways of knowing water also requires practical attention to the sites and circumstances in which values and relations matter, as Ogendi and Ong'oa (2009) argued in their exposition of water policy in Kenya. These calls resonate with Kelbessa's (2022) more recent argument for African water ethics that connect land-based freshwater actions to cumulative effects on the ocean. The emphasis of water ethics on appreciating plurality likewise led Gerlak et al. (2011) to reconsider the role that 'hydrosolidarity' could play in international water management discourses, where its influence has been strongest. Falkenmark and Folke (2010) updated their own version of 'ecohydrosolidarity' to connect water to the broader landscapes, and the rainfall (or precipitationshed), of social and ecological systems. The close connections of landscapes, water, and value were also important to Groenfeldt and Schmidt (2013), who argued for a 'values-based' approach to water governance that would recognise what they term the inherited, historical values upon which existing norms are premised. In her intervention, Doorn (2013) argued that political philosophers can play an important role in helping to clarify issues of water equity and justice that arise in the context of multiple competing demands of governance and across issues of hydrology and human rights.

In 2014, Schmidt and Peppard [Zenner] (2014) reviewed the field of water ethics by contrasting place-based norms with increased concern on planetary forcing on the planet – the emerging concern with water in the Anthropocene, which Vörösmarty et al. (2015) argued would directly challenge water norms premised on an 'impair-then-repair' model of water development, use, and (usually) incomplete restoration (cf. Bhaduri et al., 2014). By then, Groenfeldt (2013) had also been at work to keep the expanding field of water ethics in dialogue with IWRM. And, in 2014, the first edition of Zenner's (2018)

Just Water also appeared as a further resource for thinking through issues of water and religion from a Catholic perspective, and just ahead of the papal encyclical *Laudato Si'*, which urged communities to heed environmental relationships with water and the Earth (Pope Francis, 2015). As the field developed it was further solidified in Ziegler and Groenfeldt's (2017) call to put normative arguments into action in a global water ethics charter. Doorn (2019) offered another introduction to water ethics that was important owing to its incorporation of the ethics at work within engineering rather than only looking at the ethical effects of water technologies. Her arguments, like those of Al-Weshah et al. (2016), focus on showing how ethics matter to establishing shared codes of conduct that might link industry, the public, and governance actors in culturally appropriate ways. These articles and books expanded the remit of water ethics while further complicating questions about how to meet ethical obligations with respect to water given the multiple scales, values, and governance systems that affect systems of hydrology that are themselves increasingly affected by human actions. These challenges were not recognised only in this area of scholarship and, as the next section shows, prompted multiple other ways to think about water's value from other disciplinary, interdisciplinary, and anti-disciplinary vantage points.

WATER ETHICS, EXPANDED

Approaches to water ethics that critically engage considerations of environmental ethics, or moral philosophy more broadly, only partially capture how the field has developed over the past decade. Numerous disciplines and fields consider issues of ethics and values without always explicitly claiming to articulate a 'water ethic' per se. Without wishing to characterise these as something they are not, there are important aspects of these studies that have to do with water's value, as well as the social norms that distribute water with ethical impacts. This section reviews approaches that overlap with water ethics, or which lie adjacent to it, in order to think through the types of context-specific and critical approaches to normative issues in four areas: the recovery of historical norms to reposition water challenges; the appreciation of cultural difference in socio-technical water values; considerations of water's relational values, and; critical engagements with gender and water's materialities. These developments are shifting water ethics – and the tone of this review similarly shifts in an effort to leave open the ways they fit or complicate existing conversations.

Recovering historical norms

The ostensible aim of pursuing enhanced water ethics in water management, governance and policy is often the failure, inadequacy, or injustices perpetuated by existing norms. Yet there is also a considerable body of scholarship that seeks to recover earlier (sometimes lost) or obscured water ethics through history. Tisdell (2003), for instance, evaluated historical doctrines of prior appropriation (first in time, first in right) for allocating water in Australia and the United States by comparing them against Bentham's utilitarian position, John Rawls's notion of 'justice as fairness' – although Rawls (2001) himself maintained his position was political, not moral – and Nozick's libertarian response to Rawls (see generally: Forrester, 2019). Tisdell also compared other allocation doctrines against these theories, but never mentions that these doctrines all emerge amid historical and ongoing dispossession of Indigenous peoples in the U.S. and Australia. So, as with other areas of water ethics scholarship it is important to think through the work that history, philosophy, and other disciplinary fields do in framing normative questions and concerns.

History is contested terrain. The prior appropriation doctrine analysed by Tisdell (2003) has itself often been central in water ethics debates owing to how it travelled with settler colonialism across western Canada, the western United States, and Australia. Arguments for 'free market environmentalism' for instance, reinterpreted the doctrine as the basis for valuing water rights in service to economic efficiency (see Anderson and Leal, 1991). As Schorr (2012) has detailed, however, the doctrine itself was historically formed in the United States precisely to thwart capitalist speculation on the value of water rights and to secure water to communities of actual water users. Those communities were imagined in colonial terms

as non-Indigenous settlers both in the United States and Canada (Schorr, 2005). As a result, the ethics of fair community distribution within prior appropriation was itself premised on the dispossession of Indigenous peoples for whom the doctrine operates within broader structures of injustice (Matsui, 2009; Curley, 2019). Matsui (2012) connects these concerns to the explicit need for water ethics that address historical injustices in the context of pursuing contemporary relief in efforts toward Indigenous water security.

Histories also travel. Ideas from British colonialism, such as the 'duty of water', is one case. As Wescoat (2013a) argues, the historical extension of the duty of water from coal mining – where it measured the effort required to lift water from mines – to irrigation also requires thinking about relations of hydrology to landscape. Often, the duty of water is calculated in terms of the water needed for specific crops like rice or cotton. For Wescoat (2013b), however, there also exists an opportunity to rethink the normative notions of 'duty' in a broader sense, and through water ethics that prevent waste while also coordinating principles of use, conservation, and ecological limits alongside water needs for planting and irrigation. The tensions of history also travel in other directions to erase or displace prior water ethics. For instance, development agendas in places like Iran have interrupted long-standing norms regarding water governance in ways that have not been uniformly successful. In part, this is owing to efforts to how development agendas displaced previous governance ethics based in religious customs with secular ethics (Foltz, 2002; Balali et al., 2009). Addressing moral dilemmas that arise in cases of competing practices that link water use communities, and expectations, to landscapes and law requires fine-grained attention to ethics. For instance, Rodriguez (2007) examined how the sanctity of the acequia system for water sharing in New Mexico has ancient roots that anchor relations not only to water itself, but to the relations of territory and place water enables. Yet the contemporary formalisation of water rights there involves addressing long-standing disputes and injustices within a legal system complicated by other competing norms, such as values of efficiency, and the laws imposed by American settlers (Perramond, 2019).

The creation of a dedicated journal of *Water History* in 2009 is testament to the importance of understanding past practices and norms for their own sake and for their influence on current water challenges. This often goes beyond the discipline of history too. For instance, Yao (2022) traces the moral imaginations that combined with colonial and nationalist ambitions to control rivers like the Rhine, the Danube, and the Congo; these were part of establishing the idea of the 'international' that underpins transnational water sharing agreements. Wolf (2008) argues that tracing these considerations involves appreciating a wide, changing, and varied set of ways that water fits, or is made to comport with, understandings and orderings of societies and even the cosmos. Again, it is important to recognise that water does not operate uniquely in these respects – there are broader historical analyses of how scientific cosmologies for understanding nature affect international orders (see Allan, 2018). Further, there are other ways to find common ground. For example, Ott et al. (2016) examine transboundary water governance between Mongolia and China on the Heihe River Basin and anchor their proposed ethic in ecological sciences to argue for an empirical basis upon which to establish principles of strong sustainability that respect future generations and meet concerns of distributive justice in water allocation decisions. How histories of ethics (and their interpretations) change, as Carolyn Merchant (1997) so ably pointed out, is key to understanding how ecological relations and understandings of ethical relations themselves evolve (cf. Merchant, 2004).

Water's multiple moral ecologies

Moral aspects of decisions affecting water cannot be divorced from the broader social and cultural categories that order ethical concerns alongside others of religion, economy, politics, and gender. For Orlove and Caton (2010) this makes water a kind of 'total social fact' that, in the anthropological tradition of Mauss (1990), rejects any attempt to reduce water to one domain at the expense of understanding its place across multiple, interconnected institutions of social life that water enables and constrains (cf.

Strang, 2004; Rademacher, 2011). One important implication that follows is the inappropriateness of judging water values against a standard presumed independent of the social conditions that produced it. The project that then remains is to understand water ethics as they are lived in sites of social, ecological, and hydrological relations – what Flanagan (2019) terms the unique moral ecologies that animate ethical life.

Ethnographic work provides one way to elucidate water's multiple moral ecologies. Scaramelli's (2021) research in Turkey showed clearly how spatial, ecological, and economic relations to wetlands as sites of moral contest over conservation, livelihoods, and development. Part of what complicates Scaramelli's account are scientific and technical questions over what a wetland is, answers to which are constituted across social differences of class, gender, and so on. In Gagne's (2018) study of social care for glaciers in the Himalayas, ethics for water emerge through the ways that glacial advance and retreat intersect with changes in religious training and praxis, local livelihoods, and regional economics that shift demographics as young people leave for jobs elsewhere. These all alter who relates to water and how. Farmer (2023) details how water ethics are interwoven with religion, norms of reciprocity, and social shame with respect to both procuring water and managing wastewater in Cairo's informal settlement of Ezbet Khairallah. Importantly, as Ballestero (2019) shows, ethical issues likewise animate efforts to impose uniform regulatory systems on complex social relations to water. In Ballestero's (2019) case, regulators in Costa Rica attempted to produce a mathematical formula for transforming the human right to water into a price – a project of financialising human rights to meet the ethical obligations those rights entail (cf. Ballestero, 2014). Costa Rica is not alone in being influenced by attempts to deliver on the human right to water and sanitation *through* the market rather than, as many activists conceptualise, *against* it (see Baer, 2017). Muehlebach (2023) details, for instance, the socially insurgent practices of burning water bills, physically blocking the installation of water meters, sabotaging meters already in place, and writing new laws that object to the privatisation and financialisation of water in Europe. More generally, the injustices that arise when efforts to normalise relations to water in accordance with the values of a dominant social group are described by McLean et al. (2018) as producing 'shadow waters' – a metaphor for how relations to water are oppressed by groups dominating others.

The idea of 'shadow waters' draws inspiration from Plumwood's (2008) arguments regarding the ways in which place-based understandings of values do not guarantee ethical relations. For instance, commodification might produce a false consciousness regarding place (Plumwood, 2008). For many Indigenous peoples, colonial constructions of place oppress and occlude their own ethical relations to water. Daigle (2018) shows how Indigenous resurgence can counter colonial ethics of extraction through grounded relations to water. The Lakota phrase *Mni Wiconi*, "water is life", became an ethical, political, and legal touchstone during the international movement of solidarity in support of the Standing Rock Sioux nation's struggle against pipeline development through their waters in the United States (see Estes et al., 2019). As Estes (2019) shows, Indigenous relations to water are ethically connected across considerations of sovereignty, self-determination, and ecology. Wilson and Inkster (2018) highlight the importance of respecting the ontological basis in kinship and reciprocity of Indigenous relations to water. Centring Indigenous water ethics is in this respect critical to arresting the perpetuation of dominant, oppressive understandings of normative connections of water and place (McGregor, 2014).

The non-essential nature of Indigeneity, coupled with the diversity of colonialisms past and present, amplifies the need for careful attention to the moral ecologies affecting relations to water. Dotson and Whyte (2013) show how an important ethical starting point in these considerations is recognition that the harms inflicted by dominant groups may not be knowable within their own normative frameworks. These harms can operate at different scales. Purposeful environmental racism, like siting toxic waste sites on Indigenous land present just one kind of concern. Others include the ways that measurements of toxicity reflect non-Indigenous considerations of health, or obligations to fish and other non-humans (Dotson and Whyte, 2013; cf. Todd, 2017). Additional concerns accrue at larger scales, such as how climate change alters the material conditions of water's many forms. As Gagné (2020) identifies, the

materiality of water and its connection to place – such as in sacred geographies in the Himalayas – require thinking ethically about reciprocity rather than compartmentalised notions of 'feedbacks' in the climate system. Thinking across these types of relations requires thinking across water in its different phases, from the ice and snow that animate Watt-Cloutier's (2018) arguments for the "right to be cold" to concerns over how different losses of water, such as those on display in the growing number of funerals mourning the deaths of glaciers, are not always legible to one another (Schmidt, 2021). For instance, glacial loss poses distinct ethical concerns for Indigenous peoples, such as the Tlingit, who live in interdependent relations with the agency and sentience of glaciers now retreating owing to climate change (Hayman et al., 2018; Cruickshank, 2005).

Attention to place matters also for thinking across different moral ecologies without supposing an independent ethical or methodological standard that reduces them to mere cases of some more general phenomenon. Kannegeiser and Todd (2020: 385) eloquently capture the challenge in their call to shift from "environmental case study to environmental kin study" that appreciates the specificity of Indigenous kinship. Cattelino et al. (2019) offer one approach for thinking across different moral ecologies through their orientation to water flourishing – positive, mutually enhancing relations rather than human-water relations deemed inherently negative; they use this approach to consider interdependent relations and shared obligations in Kathmandu (Nepal), Perth (Australia), and the Florida Everglades (United States). The care required to attend to different relations to water has also been a key concern for appraising how different moral economies of water are deemed 'scalable' for the purposes of policy transfer. As Trawick et al. (2014) argue, attempts to lift successful normative principles, such as for trading water rights, from their social context – their broader moral economies – for application elsewhere is a fraught process (cf. Trawick, 2010). Beresford et al. (2023) argue that there are no moral economies of water, but rather only those moral economies *for* water that take shape within communities and polities and which articulate with competing considerations of justice. Given the importance of place, one takeaway from the works cited in this section is caution when it comes to the search for solutions to water crises that can be applied 'at scale' in global water policy.

Water's relational values

Recently, efforts to link subjective values held by individuals or communities with management criteria deemed value-independent has been augmented by a rapidly expanding body of scholarship on relational values. In this ethical position, relations hold ontological priority – that is, relations are "constitutive of entities rather than being conceived as external link(ing) between them" (Muraca, 2016: 19). In this view ethics begins neither with an individual or communal 'subject' nor with an 'object' being valued (i.e. water). Further, relational values provide a category of values that is not oriented to the instrumental uses to which water may be put nor only to the intrinsic value it holds for different groups (see Neuteleers, 2020). The insistence on this shift as an ontological difference – as a difference in the kinds of values that constitute ethics – has generated a significant new area of consideration in water ethics owing to the many ways that water's relations are constitutive of species, processes, economies, and communities. It is a shift that also points to differences in how 'relations' themselves are understood, as subsequent sections of this article show in distinguishing literal kinship relations to water held by Indigenous peoples from relations to water understood otherwise.

Granting relations priority can be helpfully contrasted with the dominant development ethos of the 20th century, which Conca (2006) described as that of 'pushing rivers around'. For instance, Jackson et al. (2022) argue that a relational approach to rivers requires submitting to their rhythmicity; that is, the temporal, periodic shifts to when and how waters flow in particular places and the ways that those temporal and spatial dynamics constitute riparian relations. The importance of relational values for rivers has been a growing focus of the literature across a range of scales, with Mould et al. (2020) arguing that the success of participatory water management efforts depends critically upon them. West et al. (2018) argued that one reason relational values are vital is that understanding norms of stewardship and care

for local environments is best explained by attending to the emergent relations through which values are constituted. For instance, Sheremata (2018) highlights how attention to relational values among Inuit peoples provides a way to incorporate culturally specific narratives into decision making, such as those regarding relations to sea ice and other shifting temporalities of water. As Bataille et al. (2021) show in the case of wetlands, attending to relational values can provide a critical bridge for cross-cultural exercises in management owing to how these kinds of values might provide a basis for common concerns even where instrumental or intrinsic value differences exist across, in their case, Māori environmental guardians and landowners in Aotearoa New Zealand.

Relational values are also relevant to understanding plural relations to water across different kinds of concerns, and different ethical orientations. For instance, Anderson et al. (2019) use the concept to broker the value challenges regarding environmental flows in terms of the reciprocal effects of values in legitimating particular environmental impacts, Indigenous relations to water, and multi-purpose management projects. In their study, comparative work from Honduras, India, Canada, New Zealand and Australia anchors the call for relational approaches to human-water interactions. As implied above regarding 'shadow waters', respect for plural values is not the same as assigning equal weight to those values. Rather, water ethics requires thinking through the ways that plural values themselves also affect water systems. Milgin et al. (2020) argue that the context of converging crises provides warrant for thinking through non-dominant relational values, particularly those of Indigenous peoples, to reframe ethics of care linking hydrological and social systems. In their comparative assessment, Jenkins et al. (2021) modelled global water security scenarios under different relational conditions valuing environmental flows, the right to water, and commercialised rights to show how water security is itself ethically situated. A relational approach to water security was also advanced by Jepson et al. (2017), who framed ethical considerations not through relational values per se but rather through the capabilities framework developed respectively by Sen (1999) and Nussbaum (2011).

In terms of water ethics, the potential of relational water values is evident in the alternative it offers to instrumental versus intrinsic orientations to value and in the plural, place-based orientation to values it advances. Bearing in mind the advice above from Plumwood regarding the potential for false-consciousness regarding place-based values, Shah and Rodina (2018) argue it is also important for water ethics to examine particular historical, environmental, and institutional conditions in which values are articulated. It is also clear, for instance, that the different meanings of 'relational' also matter. For instance, Indigenous kinship relations are literal relations, including with non-humans, other species, and water in multiple forms, such as rivers or glaciers, and what Yazzie (2018) terms relational futures (cf. Todd, 2017; Daigle, 2018; Hayman et al., 2018). As such, organising water ethics in terms of relational values must be alert to the social and cultural forms of life through which relations themselves are understood and lived. As the next section considers, and as Yates et al. (2017) argue, water's dynamic material make-up both has and fits with multiple ontologies that constitute relations themselves in plural ways.

Gender and water's materialities

Water's propensity for flouting categories and attempts to corral its material and moral meanings can also be a virtue. Feminist, ecofeminist, and queer approaches to ethics and value often highlight water's lack of conformity to any particular value framework, and especially patriarchal ones. In this context, rigidity to the category of 'gender' in management, development, and policy is exchanged for more fluid treatments than those of IWRM, or in how the Dublin Principles 'recognise' that women have a special role to play in safeguarding water. Many scholars critique the ways gender considerations have essentialised women's roles with respect to water without addressing inequitable power structures, such as uneven rights to water and methods of 'counting' water for statistical purposes that disadvantage women (see Zwarteveen and Meinzen-Dick, 2001; Mehta et al., 2014a; Lahiri-Dutt, 2015; Wilder and

Ingram, 2018). Power structures ordering gender roles, and which normalise gendered – typically masculine – ways of knowing and relating to water have been an important aspect of water ethics.

An initial starting point for many feminist and ecofeminist scholars is that there is a shared structure of domination that oppresses women and the environment (Warren, 1990). Alliance with trans and queer approaches to oppression, as well as recognition that non-White peoples were also oppressed similarly, has often (though not always) provided a basis for ecofeminism to expand its remit while still appreciating what Merchant (1980) identified as the exercise of patriarchal power through environmental sciences. Merchant's (1997, 2004) own alternative was a partnership ethic in which control over the environment, and the patriarchal narratives that justified that control, were exchanged for equity between human and non-human communities. Numerous feminist perspectives have developed different ethical arguments. For instance, Plumwood's (1993, 2002) diagnosis of patriarchal domination focused on the dualisms through which women, non-white people, and nature are categorised together. As Gaard (2001) takes up with respect to environmental sexism, racism, and classism, water is often central to how these dualisms structure oppression by naturalising a hierarchy of values favouring 'masculine' traits, such as valuing men over women, white over non-white, reason over emotion, culture over nature, and so on. As Delgado and Zwarteveen (2017) show, destabilising, decentring, de-naturalising and otherwise queering masculine approaches to knowing, relating to, and managing water provide alternative starting points better attuned to considerations of sustainability and equity.

The inability of singular approaches to capture water's fecundity, and the violence of attempts to have one view dominate others, has been furthered in ethics thinking across different genders and sexualities. Neimanis (2013) starts out by thinking through the composition of fleshy bodies by water and the ways that being so constituted extends subjectivity beyond the human by virtue of water's multiple cycles and materialities through and beyond the body. This "feminist subjectivity, watered" is extended by Neimanis (2014) to critique the human right to water to the extent that its anthropocentric orientation – the ethical view that all and only humans merit moral consideration – does not recognise the emergent and entangled relationships that co-constitute relations to water across bodies, societies, ecologies, and hydrologies. Pushing further on this line of thought, Neimanis (2017) argues that the stories and narratives told about water are critical to how relations to it are understood and, crucially, lived. Wöelfle-Erskine (2017: 7) provides an alternate account through queer and trans scholarship that thinks through riverine sciences according and to a notion of the watershed body, "which comes into being through relations among its multispecies inhabitants and the landscapes and weather systems that shape them". The embrace of entangled relations demands ethics that are not limited strictly to water but to achieving justice with respect to the multiple ways water constitutes and sustains the ecological conditions for human and non-human communities (cf. Wöelfle Hazard, 2022).

The expansion of water ethics across feminist, eco-feminist and queer scholarship undermines the conceit of reviews like this one – that the categories used to organise thoughts about water hold up under the exuberance of its relationships. They also point to how water can be a site for multiple kinds of solidarity across disciplines, sexualities, regions, and customs. The poet and scholar Rita Wong (2013), for instance, describes participating in Healing Walks around the tar sands of Alberta, Canada. Those experiences are not merely cerebral, nor are they individualised ethical encounters. Rather they are acts of solidarity amid a landscape that smells of sulphur and with the sounds of canons firing to keep birds from landing on toxic ponds (Wong, 2013). A testament to her scholarly and ethical commitments, Wong (2019) was sentenced to 28 days in prison in 2019 for protesting a pipeline from Alberta's oil sands to Canada's west coast. Such acts of civil disobedience also point to the ways that water ethics are not adequately explained without attending to the ways that moral warrant anchors direct action in efforts to achieve water justice. As Allison (2017) also points out, addressing forms of gendered inequality demands thinking about the changing conditions of ethics owing to climate change and the ways they amplify inequity. These concerns mean water ethics must orient itself to multiple scales of action affecting the hydrosphere (cf. Groenfeldt, 2021). As the next section considers, it is vital to also examine

how responsibilities to water and to others are acted upon by communities and by scholars allying with pursuits for water justice.

WATER JUSTICE: TOWARDS INTERSECTIONAL WATER ETHICS

The Indigenous land defender Berta Cáceres was assassinated in 2016, and in 2021 the former head of the dam company she peacefully opposed was found guilty of collaborating in her murder (Lakhani, 2020, 2021). Violence against land defenders, many of whom are also water protectors, and many of whom are Indigenous women presents a critical choice for scholars who recognise the moral obligation to stand with, and otherwise support those who are oppressed. Injustices are not evenly distributed, and an important ethical concern is to understand how different kinds of inequality intersect with one another. As Gerlak et al. (2022) argue, different kinds of inequality owing to racism, racial capitalism, colonialism, and sexism demand a mode of pursuing equity and justice capacious enough to account for multiple inequitable outcomes. Their recommendation is to pursue an intersectional approach to equity that, as the definition above from Collins (2015: 2) makes clear, appreciates that individuals may experience different kinds of oppression within and across the groups of which they are a part, such as gender oppression that operates differently for white versus non-white women, or rich women of colour versus those impoverished. This section pushes the water ethics literature to square up more directly with how an intersectional ethic might take shape in view of contexts shaped by demands for justice, and in view of activist approaches to scholarship. It then considers responses to injustice that mobilise rights for water, which also expand the remit of water ethics.

Crenshaw's (1991) influential account of intersectionality focused on experiences of women of colour. It was an argument situated amid others, such as that of bell hooks (1992: 22), who argued that confronting racial oppression against Black peoples also involved recognising how "collective black self-recovery takes place when we begin to renew our relationship to the earth, when we remember the way of our ancestors" (cf. Collins, 1986). Any orientation to intersectional ethics owes its impetus to this tradition (see Collins, 2015 for an overview). So too does extending it to understand how multiple forms of oppression and inequality affect water, such Thompson's (2016) work developing an approach to water-society relations in dialogue with intersectional feminism. More recently, Brown et al. (2023) focused attention on how specific inequalities of gender, race, and class differentially affect experiences of migration, homelessness, ethnic discrimination, and Indigeneity. As this section considers, while the growing number of works on intersectional water concerns target accounts of inequality and inequity, they also provide opportunities for more explicit ethical engagement across the numerous contexts they take up: from gender and nutrition in India (Mitra and Rao, 2019), to citizenship and infrastructure in Bangladesh (Sultana, 2020), to water access in Ghana and South Africa (Harris et al., 2017).

Environmental injustice – water injustice in particular – is often marked by the inequitable distribution of risks and harms affecting peoples of colour but also extends to considerations of political participation, water access, cultural recognition, and ecosystem integrity (Zwarteveen and Boelens, 2014; Boelens et al., 2018). Treating these different areas of injustice not as static categories but as intersecting vectors of concern further helps elucidate the unique moral ecologies of water injustice. For instance, the injustices of the 'Day Zero' water crises in Cape Town, South Africa differentially affected residents of the city owing to how racial and gender considerations intersected with its history of unequal water infrastructure before and after apartheid (see von Schnitzler, 2016). As Enqvist and Ziervogel (2019) demonstrate, histories of structural oppression that moved Black South Africans to low-lying, flood prone, yet water deprived areas were exacerbated during the city's emergency response to the potential running dry of its reservoir system. Further, as Robins (2019) shows, moral arguments about presumptive water entitlements of citizens differed by class as wealthier citizens sought to buy their way out of the crisis by securing private water reserves while women of colour experienced heightened vulnerability as public taps were securitized. Further, the water crisis was complicated and compounded by climate change,

which raises additional considerations of climate justice that intersect with the materiality of water infrastructure (Millington and Scheba, 2021).

Specific, multiple water inequalities in cases like Cape Town present a strong case for pursuing an intersectional water ethic to align moral argumentation with actual practices of pursuing water justice. So too do other cases. Pauli's (2019, 2020) trenchant examination of the racialised effects of municipal water decisions in Flint, Michigan (US) shows in unvarnished detail the ways that the experiences of Black communities suffering from toxic waters were denied legitimacy and oppressed. Civic response to the crisis in Flint, as Pauli (2019) shows, was mobilised through local histories and relationships of democratic organisation formed previously in response to oppression based on race and class. Elsewhere in the US, the lack of complete household infrastructure for drinking water and sanitation shows similar patterns of racial injustice in what Dietz and Meehan (2019) term "plumbing poverty". Similar inequalities hold in the United States when it comes to the enforcement of drinking water standards (see Switzer and Teodoro, 2018). These issues are also not unique to cities. Informal, peri-urban areas in California known as Disadvantaged Unincorporated Communities, are characterised by spatial, racial, and classed based inequality that unequally affect Black and Latino communities (London et al., 2021). Similarly, agricultural norms for irrigation are often artefacts of racial oppression, as Berry and Jackson (2018) show in their examination of how irrigation expertise was organised to benefit white settlers in the United States and Australia. Those historical inequalities persist in systemic forms of racial water inequality affecting Indigenous peoples in the United States (see Tanana et al., 2021). In India, Dutta et al. (2018) detail how Dalit women are discriminated against based on caste and subject not only to inequalities arising from unequal access to water sources shared in common but also multiple forms of social exclusion and abuse (cf. Dixit, 2019). Critically for thinking through an intersectional approach to water ethics, the relationships that link different combinations of ethical categories to an account of justice require attention to context (cf. Sandel, 1982).

Racial oppression frequently intersects with colonial occupation of Indigenous land. As noted earlier, the ethics of solidarity supporting Indigenous self-determination are important aspects of water ethics. But it is also important to not centre colonial categories as the reference point for Indigenous relations to and with water. Robison et al. (2018: 887) provide one way to understand the "inherent ethical value" of water for Indigenous peoples without essentialising the notion of Indigeneity in ways that homogenise place-specific obligations and laws. For instance, as McGregor (2015: 72) shows in Anishinaabek law, gender relations and concepts of *zaagidowin* (love) anchor water justice in ways that consider "not only the trauma experienced by people and other life due to water contamination, etc.; but values the waters themselves as sentient beings in need of healing from historical traumas". Elsewhere, such as in Aotearoa New Zealand, the dispossession of Maori from their lands has curtailed their ability to discharge obligations and responsibilities of *kaitiakitanga* (roughly: water stewardship) (Stewart-Harawira, 2020). Similarly, Phare (2009) argues that water ethics are key to political efforts of self-determination for Indigenous peoples under forms of sovereignty authorised not by the state but through Indigenous law. As George and Wiebe (2020) show, a similar concern animates respect for Indigenous relationality to oceans and seascapes as a life force, not as resource.

Colonialism has also generated, and exacerbated, many other kinds of water injustice that form additional momentum for pursuing intersectional water ethics. In the Canadian province of Nova Scotia, Indigenous oppression intersects with racism against Black communities (and other peoples of colour) in ways that produce water injustices (Waldron, 2018). In South America, as Correia (2022) has shown, waterscapes physically reconfigured by colonial rule produce flood and drought vulnerabilities, and injustices, for Indigenous peoples in Paraguay. Large dams in Brazil, such as the Itaipu Dam, have likewise had what are now well known but no less devastating effects on local communities (Blanc, 2019). Ulloa (2020) powerfully shows how responses to coal mining threats to the territory of the Wayúu in Colombia have led to demands for relational water justice not only for the Wayúu but also for water's territories and rights, such as the sacred places inhabited by spirits. This call for relational justice befits a form of

Indigenous relationality in which Indigenous women play a special role in the protection of water. Wilson et al. (2021) argue that a key normative step in respecting the multiple, plural legal orders of Indigenous peoples with respect to water is to not reproduce colonial distinctions that separate water from its constitutive relations with other species, processes, and land. As Daigle (2018: 160) emphasises, for instance, the Cree word *aski* "expresses the holistic relationship of land and water and...does not set up a binary between land and water". For Norman (2018), Indigenous relations to land are not inherently limited by their specificity to place and, owing to their long-term disposition, suggest a path for a global water ethic oriented to treating water as sacred, reconnecting rights and responsibilities, and encouraging hydrophilia – loving and knowing your waterways.

Connecting values to responsibilities has also been a key strategy anchoring different kinds of claims to water in terms of legal rights, and for seeking water ethics that broker shared normative dispositions across Indigenous and non-Indigenous communities (see Stefanovic and Adeel, 2021). One key site where momentum can also be found for these kinds of water ethics in practice is in declarations of rights for rivers. McAnally (2019), for instance, argues that approaches of integral ecology can unite the love of water and a water ethic by situating western, scientific cosmologies in a broader understanding of Earth's coevolution – such as that offered by Thomas Berry. Berry (1999) is perhaps best known for his theory of Earth jurisprudence, which is often cited in calls to recognise the rights of nature. The idea of Earth jurisprudence is anchored in the idea that "humans are only one part of a wider community of beings and that the welfare of each member of that community is dependent on the welfare of the Earth as a whole" (Cullinan, 2011: 3). Burdon (2012), for instance, used the ecocentric values of Earth jurisprudence to critique management plans for Australia's Murray-Darling river and to argue for the priority of ecological integrity over continued development.

Rights are not an ethical panacea; scholarship on the human right to water and sanitation makes clear they are contested terrain (Mehta et al., 2014b; Baer, 2017; Sultana and Loftus, 2020). So too are the rights declared for rivers, lakes, and other bodies of water that are rapidly proliferating in jurisdictions around the world (see Kauffman and Martin, 2021). Often, these rights are accompanied with intrinsic or extrinsic value claims and moral imperatives. As with other complex cases, the moral ecologies at work in the rights of nature are not homogenous owing to multiple factors. One is the different ways in which rights of water may be recognised through court decisions, specific pieces of legislation, or constitutional amendments (see generally Boyd, 2017; Kauffman and Martin, 2021). Further, as O'Donnell (2020) shows, legal recognition of the living status of rivers doesn't necessarily translate into water rights that secure actual flows of water. Moreover, Tănăsescu (2020) argues, rights that recognise the personhood of rivers and other natural entities are not themselves always capacious enough to capture the ontological positions of Indigenous philosophies. Despite the reservations of scholars critical of rights for water, O'Donnell et al. (2020) emphasise that Indigenous law and relations to water have in many respects led the global movement to recognise the rights of nature, and water in particular. So, even if these kinds of rights are not straightforward remedies for intersectional injustices it is critical to understand the ethical work they do.

Varied legal statuses for river protection have different effects on considerations of ethics and justice. Shah and Rodina (2018) argue the 2005 *Queensland Wild Rivers Act* in Australia, for instance, makes numerous ethical assumptions in terms of what is taken to be 'natural' and how conservation regulations are designed in this light. Page and Pelizzon (2022), by contrast, track a clear normative trajectory that, although not cleanly accomplished given other contests and power dynamics, is facilitated by declarations on the rights of rivers that are moving law from purely rights-based discourse towards a more relational understanding. As Linda Te Aho (2019) considers, the tensions between Indigenous and western laws and values in the case of river management in Aotearoa New Zealand presents clear tensions but also powerful ways to reorient understandings of holism and obligations to waterways and future generations. More broadly, in their comparison of rights of river approaches in India, Colombia, and New Zealand Further, Immovilli et al. (2022) argue that rights of rivers compete with other kinds of

remedies for improving water governance as they are contested through cultural negotiations, the distribution of political power, definitions of 'development' and 'rights' and different understandings of relations among water, nature, and people. In other words, there are numerous intersecting concerns that affect how 'rights' of rivers fit with ethical values and aims.

The complex ways that gender, race, class, caste, colonialism, and other vectors of marginalisation affect water ethics matter for both pursuing equity and for understanding how scholars position themselves in spaces that bridge from the academy to communities. These spaces are no less political than efforts to strategically deploy water ethics by agencies like UNESCO, and so considerations like the rights of rivers deserve attention for how they too affect the concerns and scope of water ethics (cf. Boelens et al., 2022). Increasing attention to intersectional considerations presents an alternative way to think with and through histories of water values and the power dynamics that have established reference points in laws, social mores, and cultural practices over and against others. In this context, the unique ethical considerations that gathering momentum for the rights of water bodies present are both enlivening debates over the relationships of water, value, and equality, and almost certain to be a major future area of study given the growing number of declarations globally.

CONCLUSION

Ethical challenges facing waters and the human and non-human communities that rely upon them are mounting. As Meisch (2019) emphasises, it matters what kind of stories are told about these challenging conditions, and by whom, because water narratives shape spaces of ethical possibility and action. As this review has shown, the pursuit of water ethics has made use of many different entry points across disciplines and political dispositions – not all of which agree with, nor are necessarily commensurate with, one another. New efforts to reinvigorate mutually enhancing stories and relations to water are evident. So too are renewed efforts to corral norms for 'valuing water' at the level of global water governance. So, it is unlikely that the core concerns of water ethics are likely to wane anytime soon.

In place of offering prescriptions for how the field may develop, one conclusion from this review is that it is evident that water ethics continue to be directly relevant to understanding how morally salient judgments cannot be avoided on matters affecting water and its relations. This provides for both encouragement and urgency in ensuring that ethical considerations are given due priority across the many ways of knowing and deciding on issues affecting water. It also recommends attention to the ways that approaches to values and ethics are shifting as the specificity of intersectional inequalities are recognised. There is already a widely appreciated recognition of context and place-based concerns in water scholarship. Indeed, the direction of travel in World Water Development Reports cited at the outset of this review has been towards pointing out the concrete ways that water inequalities play out. These intersecting inequalities require ways to engage specific contexts that respect how lived inequalities differ and how water matters differently – ethically – to them.

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REFERENCES

- Acreman, M. 2004. *Water and ethics: Water and ecology*. Paris: UNESCO.
- Aureli, A. and Brelet, C. 2004. *Women and water: An ethical issue*. Paris: UNESCO.

- Allan, B.B. 2018. *Scientific cosmology and international orders*. Cambridge: Cambridge University Press.
- Allison, E. 2017. Toward a feminist care ethic for climate change. *Journal of Feminist Studies in Religion* 33(2): 152-158.
- Al-Weshah, R.; Saidan, M. and Al-Omari, A. 2016. Environmental ethics as a tool for sustainable water resource management. *Journal of the American Water Works Association* 108(3): e175-e181.
- Anderson, E.; Jackson, S.; Tharme, R.E.; Douglas, M.; Flotemersch, J.; Zwartveen, M.; Lokgariwar, C.; Montoya, M.; Wali, A.; Tipa, G.; Jardine, T.; Olden, J.; Cheng, L.; Connalin, J.; Cosens, B.; Dickens, C.; Garrick, D.; Groenfeldt, D.; Kabogo, J.; Roux, D.; Ruhi, A. and Arthington, A.H. 2019. Understanding rivers and their social relations: A critical step to advance environmental water management. *WIREs Water* 6(6), e1381 (1-21).
- Anderson, T.L. and Leal, D.R. 1991. *Free market environmentalism*. Boulder: Westview Press.
- Baer, M. 2017. *Stemming the tide: Human rights and water policy in a neoliberal world*. Oxford: Oxford University Press.
- Balali, M.R.; Keulartz, J. and Korthals, M. 2009. Reflexive water management in arid regions: The case of Iran. *Environmental Values* 18(1): 91-112.
- Ballesterio, A. 2014. What is a percentage? Calculation as the poetic translation of human rights. *Indiana Journal of Global Legal Studies* 21(1): 27-53.
- Ballesterio, A. 2019. *A future history of water*. Durham: Duke University Press.
- Barnett, C. 2011. *Blue revolution: Unmaking America's water crisis*. Boston: Beacon Press.
- Barraqué, B. 2004. *Water and ethics: Institutional issues*. Paris: UNESCO.
- Bataille, C.Y.; Malinen, S.K.; Yletyinen, J.; Scott, N. and Lyver, P. 2021. Relational values provide common ground and expose multi-level constraints to cross-cultural wetland management. *People and Nature* 3(4): 941-960.
- Beresford, M.; Wutich, A.; Garrick, D. and Drew, G. 2023. Moral Economies for water: A framework for analyzing norms of justice, economic behavior, and social enforcement in the contexts of water inequality. *WIREs Water* 10(2): e1627.
- Bernstein, S. 2001. *The compromise of liberal environmentalism*. New York: Columbia University Press.
- Berry, K.A. and Jackson, S. 2018. The making of white water citizens in Australia and the Western United States: Racialization as a transnational project of irrigation governance. *Annals of the American Association of Geographers* 108(5): 1354-1369.
- Berry, T. 1999. *The great work: Our way into the future*. New York: Bell Tower.
- Bhaduri, A.; Bogardi, J.; Leentvaar, J. and Marx, S. (Eds). 2014. *The global water system in the Anthropocene: challenges for science and governance*. Dordrecht: Springer.
- Blanc, J. 2019. *As before the flood: The Itaipu Dam and the visibility of rural Brazil*. Durham: Duke University Press.
- Boelens, R.; Perreault, T. and Vos J. (Eds). 2018. *Water justice*. Cambridge: Cambridge University Press.
- Boelens, R.; Escobar, A.; Bakker, K.; Hommes, L.; Swyngedouw, E.; Hogenboom, B.; Huijbens, E.; Jackson, S.; Vos, J.; Harris, L.; Joy, K.; Castro, F.; Duarte-Abadía, B.; Souza, D.; Lotz-Sisitka, H.; Hernández-Mora, N.; Martínez-Alier, J.; Roca-Servat, D.; Perreault, T.; Sanchis-Ibor, C.; Suhardiman, D.; Ulloa, A.; Wals, A.; Hoogesteger, J.; Hidalgo-Bastidas, J.; Vendwisch Roa-Avendaño, T.; Woodhouse, G. and K. Wantzen. 2022. Riverhood: Political ecologies or socrionature: Communing and translocal struggles for water justice. *The Journal of Peasant Studies*, online advance: <https://doi.org/10.1080/03066150.2022.2120810>
- Boltanski, L. and Thévenot, L. 2006. *On justification: Economies of worth*. Princeton: Princeton University Press.
- Boyd, D. 2017. *The rights of nature: A legal revolution that could save the world*. Toronto: ECW Press.
- Brown, J.; Acey, C.; Anthonj, C.; Barrington, D.; Beal, C.; Capone, D.; Cumming, O.; Fedinick, K.; Gibson, J.; Hicks, B.; Kozubick, M.; Lakatosova, N.; Linden, K.; Love, N.; Mattos, K.; Murphy, H. and Winkler, I. 2023. The effects of racism, social exclusion, and discrimination on achieving universal safe water and sanitation in high-income countries. *The Lancet: Global Health* 11(4): e606-14.
- Brown, P.G. and Schmidt, J.J. (Eds). 2010. *Water ethics: Foundational readings for students and professionals*. Washington: Island Press.
- Brugnach, M. and Ingram, H. 2012. Ambiguity: The challenge of knowing and deciding together. *Environmental Science and Policy* 15: 60-71.

- Burdon, P. 2012. Earth jurisprudence and the Murray-Darling: The future of a river. *Alternative Law Journal* 37(2): 82-85.
- Butler, L. 1986. Defining a water ethic through comprehensive reform: A suggested framework for analysis. *University of Illinois Law Review* 2: 439-480.
- Cattellino, J.R.; Drew, G. and Morgan, R.A. 2019. Water flourishing in the Anthropocene. *Cultural Studies Review* 25(2): 135-152.
- Chamberlain, G. 2008. *Troubled waters: Religion, ethics, and the global water crisis*. London: Rowman and Littlefield Publishers, Inc.
- Collins, P. 1986. Learning from the outsider within: The sociological significance of black feminist thought. *Sociological Problems* 33(6): s14-32.
- Collins, P. 2015. Intersectionality's definitional dilemmas. *Annual Review of Sociology* 4: 11-20.
- Conca, K. 2006. *Governing water: Contentious transnational politics and global institution building*. Cambridge: MIT Press.
- Correia, J.E. 2022. Between flood and drought: Environmental racism, settler waterscapes, and Indigenous water justice in South America's Chaco. *Annals of the American Association of Geographers* 112(7): 1890-1910.
- Crenshaw, K. 1991. Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review* 43(6): 1241-99.
- Cruikshank, J. (2005) *Do glaciers listen? local knowledge, colonial encounters, and social imagination*. Vancouver: UBC Press.
- Cullinan, C. 2011. *Wild law: A manifesto for Earth justice (second edition)*. Cambridge: Green Books.
- Curley, A. 2019. "Our Winters' rights": Challenging colonial water laws. *Global Environmental Politics* 19(3): 57-76.
- Daigle, M. 2018. Resurging through Kishiichiwan: The spatial politics of Indigenous water relations. *Decolonization: Indigeneity, Education & Society* 7(1): 159-172.
- Delgado, J.R.V. and Zwartveen, M. 2017. Queering engineers? Using history to re-think the associations between masculinity and irrigation engineering in Peru. *Engineering Studies* 9(2): 140-160.
- Dietz, S. and Meehan, K. 2019 Plumbing poverty: Mapping hot spots of racial and geographic inequality in US household water insecurity. *Annals of the American Association of Geographers* 109(4): 1092-1109.
- Dixit, P. 2019. Rivers and social justice: Adopting an ethical approach to river basin management in India. *Indian Law Review* 3(1): 97-115.
- Doorn, N. 2013. Water and justice: Towards an ethics of water governance. *Public Reason* 5(1): 97-114.
- Doorn, N. 2019. *Water ethics: An introduction*. London: Rowman & Littlefield.
- Dotson, K. and Whyte, K. 2013. Environmental justice, unknowability and unqualified affectability. *Ethics and the Environment* 18(2): 55-79.
- Dutta, S.; Sinha, I. and Parashar, A. 2018. Dalit women and water: availability, access and discrimination in rural India. *Journal of Social Inclusion Studies* 4(1): 62-79.
- Ekbladh, D. 2010. *The great American mission: Modernization and the construction of an American world order*. Princeton: Princeton University Press.
- Enqvist, J. and Ziervogel, G. 2019. Water governance and justice in Cape Town: An overview. *WIREs Water* 6(4): e1354.
- Espeland, W.N. 1998. *The struggle for water: Politics, rationality, and identity in the American Southwest*. Chicago: University of Chicago Press.
- Estes, N. 2019. *Our history is the future: Standing Rock versus the Dakota Access Pipeline, and the long tradition of Indigenous resistance*. London: Verso.
- Estes, N. and Dhillon, J. (Eds). 2019. *Standing With Standing Rock: Voices From the #nodapl Movement* Minneapolis: University of Minnesota Press.
- Falkenmark, M. and Folke, C. 2002. The ethics of socio-ecohydrological catchment management: Toward hydrosolidarity. *Hydrology and Earth System Sciences* 6(1): 1-10.

- Falkenmark, M. and Folke, C. 2010. Ecohydrosolidarity: A new ethics for stewardship of value-adding rainfall. In Brown, P.G. and Schmidt, J.J. (Eds), *Water ethics: Foundational readings for students and professionals*, pp. 247-264. Island Press, Washington DC.
- Farmer, T. 2023. *Well connected: Everyday water practices in Cairo*. Baltimore: John Hopkins University Press.
- Feldman, D. 1991. *Water resources management: In search of an environmental ethic*. Baltimore: John Hopkins University Press.
- Feldman, D. 2007. *Water policy for sustainable development*. Baltimore: John Hopkins University Press.
- Feldman, D. and Ingram, H. 2009. Multiple ways of knowing water resources: Enhancing the status of water ethics. *Santa Clara Journal of International Law* 7(1): 1-22.
- Flanagan, O. 2019. *The geography of morals: Varieties of moral possibility*. Oxford: Oxford University Press.
- Foltz, R.C. 2002. Iran's water crisis: Cultural, political, and ethical dimensions. *Journal of Agriculture and Environmental Ethics* 15: 357-380.
- Forrester, K. 2019. *In the shadow of justice: Postwar liberalism and the remaking of political philosophy*. Princeton: Princeton University Press.
- Freyfogle, E. 1996. Water rights and the common wealth. *Environmental Law* 26: 27-51.
- Gaard, G. 2001. Women, water, energy: An ecofeminist approach. *Organization & Environment* 14(2): 157-172.
- Gagné, K. 2018. *Caring for glaciers: Land, animals, and humanity in the Himalayas*. Seattle: University of Washington Press.
- Gagné, K. 2020. The materiality of ethics: Perspectives on water and reciprocity in a Himalayan Anthropocene. *WIREs Water* 7(4): e1444.
- Gerber, L. 2003. The nature of water: Basia Irland reveals the 'is' and the 'ought'. *Ethics & the Environment* 8(1): 37-50.
- Gerlak, A.K.; Varady, R.G.; Petit, O. and Haverland, A. C. 2011. Hydrosolidarity and beyond: Can ethics and equity find a place in today's water resource management? *Water International* 36(3): 251-265.
- Gerlak, A.K.; Louder, E. and Ingram, H. 2022. An intersectional approach to water equity in the US. *Water Alternatives* 15(1): 1-12.
- George, R.Y. and Wiebe, S.M. 2020. Fluid decolonial futures: Water as a life, ocean citizenship and seascape relationality. *New Political Science* 42(4): 498-520.
- Goldman, M. 2005. *Imperial nature: The World Bank and struggles for justice in the age of globalization*. New Haven: Yale University Press.
- Groenfeldt, D. 2013. *Water ethics: A values approach to solving the water crisis*. Abingdon: Routledge.
- Groenfeldt, D. 2021. Ethical considerations in managing the hydrosphere: An overview of water ethics. *Geological Society, London* 508: 201-212.
- Groenfeldt, D. and Schmidt, J.J. 2013. Ethics and water governance. *Ecology and Society* 18(1): <https://www.ecologyandsociety.org/vol18/iss1/art14/>.
- Grunwald, A. 2016. Water ethics - Orientation for water conflicts as part of inter- and transdisciplinary deliberation. In Hüttel, R.; Bens, O.; Bismuth, C. and Hoehstetter S. (Eds), *Society-water-technology: A critical appraisal of major water engineering projects*, pp. 11-29. Springer, Dordrecht.
- Hanemann, W.M. 2006. The economic conception of water. In Rogers, P.P.; Llamas, M.R. and Martinez-Cortina, L. (Eds), *Water crisis: Myth or reality?*, pp. 61-91. Taylor and Francis, London.
- Harremoës, P. 2002. Water ethics - A substitute for over-regulation of a scarce resource. *Water Science & Technology* 45(8): 113-124.
- Harris, L.; Kleiber, D.; Goldin, J.; Darkway, A. and Morinville, C. 2017. Intersections of gender and water: Comparative approaches to everyday gendered negotiations of water access in underserved areas of Accra, Ghana, and Cape Town, South Africa. *Journal of Gender Studies* 26(5): 561-82.
- Hassan, F.A. 2004. *Water and ethics: A historical perspective*. Paris: UNESCO.
- Harrington, C.; Montana, P.; Schmidt, J. and Swain, A. 2023. Race, ethnicity, and the case for intersectional water security. *Global Environmental Politics* https://doi.org/10.1162/glep_a_00702

- Hayman, E., James, C. and Wedge, M. 2018. Future rivers of the Anthropocene or whose Anthropocene is it? *Decolonization: Indigeneity, Education & Society* 7(1): 77-92.
- Hooks, Bell. 1996. Touching the earth. *Orion* Autumn: 21-22.
- Ingram, H. and Oggins, C. 1992. The public trust doctrine and community values in water. *Natural Resources Journal* 32: 515-537.
- Ioris, A 2012. The positioned construction of water values: Pluralism, positionality and praxis. *Environmental Values* 21(2): 143-162.
- Immovilli, M.; Reitsma, S.; Roncucci, R.; Rasch, E. and Roth, D. 2022. Exploring contestation in rights of river approaches comparing Colombia, India and New Zealand. *Water Alternatives* 15(3): 574-591.
- Ingram, H.; Scaff, L.A. and Silko, L. 1986. Replacing confusion with equity: Alternatives for water policy in the Colorado River Basin. In Weatherford, G. and Brown, F. (Eds), *New courses for the Colorado River: Major issues for the next century*, pp. 177-200. University of New Mexico Press, Albuquerque.
- Jackson, S.; Anderson, E.; Piland, N.; Carriere, S.; Java, L. and Jardine, T. 2022. River rhythmicity: A conceptual means of understanding and leveraging the relational values of rivers. *People and Nature* 4(4): 949-962.
- Jenkins, W.; Rosa, L.; Schmidt, J.; Band, L.; Beltran-Peña, A.; Clarens, A.; Doney, S.; Emanuel, R.; Glassie, A.; Quinn, J.; Rulli, M.C.; Shobe, W.; Szeptycki, L. and D’Odorico, P. 2021. Values-based scenarios of water security: Rights to water, rights of waters, and commercial water rights. *BioScience* 71(11): 1157-1170.
- Kangieser, A. and Todd, Z. 2020. From environmental case study to environmental kin study. *History & Theory* 59(3): 385-393.
- Kauffman, C.M. and Martin, P.L. 2021. *The politics of rights of nature: Strategies for building a more sustainable future*. Cambridge: MIT Press.
- Kelbessa, W. 2022. Water ethics. In Graneß, A.; Etieyibo, E. and Gmainer-Pranzl, F. (Eds), *African philosophy in an intercultural perspective*, pp. 161-180. Springer, Dordrecht.
- Kysar, D. 2010. *Regulating from nowhere: Environmental law and the search for objectivity*. New Haven: Yale University Press.
- Lahiri-Dutt, K. 2015. Counting (gendered) water use at home. *ACME: An International Journal for Critical Geographies* 14(3): 652-72.
- Lakhani, N. 2020. *Who killed Berta Cáceres? Dams, death squads and an Indigenous defender’s battle for the planet*. London: Verso.
- Lakhani, N. 2021. Berta Cáceres assassination: ex-head of dam company found guilty. *The Guardian*, 5 July. Last accessed 21 June 2022: <https://www.theguardian.com/world/2021/jul/05/berta-caceres-assassination-roberto-david-castillo-found-guilty>
- Llamas, R. 2004. *Water and ethics: use of groundwater*. Paris: UNESCO.
- Llamas, R.; Martinez-Cortina, L. and Mukherji, A. (Eds). 2009. *Water ethics: Marcelino Botin water forum 2007*. London: CRC Press.
- Liu, J.; Dorjderem, A.; Fu, J.; Lei, X. and Macer, D. 2011. *Water ethics and water resource management*. Paris: UNESCO.
- London, J.; Fencl, A.; Watterson, S.; Choueiri, Y.; Seaton, P.; Jarin, J.; Dawson, M.; Aranda, A.; King, A.; Nguyen, P.; Pannu, C.; Firestone, L. and Bailey, C. 2021. Disadvantaged unincorporated communities and the struggle for water justice in California. *Water Alternatives*: 14(2): 520-545.
- Matsui, K. 2009. *Native peoples and water rights: Irrigation, dams, and the law in Western Canada*. Montreal: McGill-Queens University Press.
- Matsui, K. 2012. Water ethics for First Nations and biodiversity in Western Canada. *The International Indigenous Policy Journal* 3(3): <http://ir.lib.uwo.ca/iipj/vol3/iss3/4>
- Mauss, M. 1990. *The gift: The form and reason for exchange in archaic societies*. London: Routledge.
- McAnally, E. 2019. *Loving water across religions: Contributions to an integral water ethic*. Maryknoll: Orbis Books.
- McGregor, D. 2014. Traditional knowledge and water governance: The ethic of responsibility. *AlterNative* 10(5): 493-507.

- McGregor, D. 2015. Indigenous women, water justice and *zaagidowin* (love). *Canadian Woman Studies* 30(2-3): 71-78.
- Mehta, L.; Alba, R.; Bolding, A.; Denby, K.; Derman, B.; Hove, T.; Manzungu, E.; Movik, S.; Prabhakaran, P. and Koppen, B. 2014a. The politics of IWRM in Southern Africa. *International Journal of Water Resources Development* 30(3): 528-542.
- Mehta, L.; Allouche, J.; Nicol, A. and Walnycki, A. 2014b. Global environmental justice and the right to water: The case of peri-urban Cochabamba and Delhi. *Geoforum* 54: 158-166.
- Meisch, S. 2019. *I want to tell you a story*: How narrative water ethics contributes to re-theorizing water politics. *Water* 11(4): 631.
- Merchant, C. 1980. *The death of nature: women, ecology, and the scientific revolution*. San Francisco: Harper & Row.
- Merchant, C. 1997. Fish first! The changing ethics of ecosystem management. *Human Ecology Review* 4(1): 25-30.
- Merchant, C. 2004. *Reinventing Eden: The fate of nature in western culture*. New York: Routledge.
- McLean, J.; Lonsdale, A.; Hammersley, L.; O'Gorman, E. and Miller, F. 2018. Shadow waters: Making Australian water cultures visible. *Transactions of the Institute of British Geographers* 43(4): 615-629.
- Milgin, A.; Nardea, L.; Grey, H., Laborde, S. and Jackson, S. 2020. Sustainability crises are crises of relationship: learning from Nyikina ecology and ethics. *People and Nature* 2(4): 1210-1222.
- Millington, N. and Scheba, S. 2021. Day Zero and the infrastructures of climate change: Water governance, inequality, and infrastructural politics in Cape Town's water crisis. *International Journal of Urban and Regional Research* 45(1): 116-132.
- Mitra, A. and Rao, N. 2019. Gender, water, and nutrition in India: An intersectional perspective. *Water Alternatives* 12(1): 169-91.
- Molle, F. 2008. Nirvana concepts, narratives and policy models: Insights from the water sector. *Water Alternatives* 1(1): 131-156.
- Mould, S.A.; Fryirs, K.A. and Howitt, R. 2020. The importance of relational values in river management: Understanding enablers and barriers for effective participation. *Ecology and Society* 25(2): 17, <https://doi.org/10.5751/ES-11505>
- Muehlebach, A. 2023. *A vital frontier: Water insurgencies in Europe*. Durham: Duke University Press.
- Muraca, B. 2016. Relational values: A Whiteheadian alternative for environmental philosophy and global environmental justice. *Balkan Journal of Philosophy* 8(1): 19-38.
- Neimanis, A. 2013. Feminist subjectivity, watered. *Feminist Review* 103(1): 23-41.
- Neimanis, A. 2014. Alongside the right to water, a posthumanist feminist imaginary. *Journal of Human Rights and the Environment* 5(1): 5-24.
- Neimanis, A. 2019. *Bodies of water: Posthuman feminist phenomenology*. London: Bloomsbury.
- Nelson, M.P. 2003. Earth, air, water...ethics. *Transactions: Scholarly Journal of the Wisconsin Academy of Sciences, Arts and Letters* 90: 164-173.
- Neuteleers, S. 2020. A fresh look at 'relational' values in nature: Distinctions derived from the debate on the meaningfulness in life. *Environmental Values* 29(4): 461-479.
- Norman, E. 2018. Toward a global water ethic: Learning from Indigenous communities. *Ethics & International Affairs* 32(2): 237-247.
- Nussbaum, M.C. 2011. *Creating capabilities: The human development approach*. Cambridge: Harvard University Press.
- O'Donnell, E. 2020. Rivers as living beings: Rights in law, but no rights to water. *Griffith Law Review* 29(4): 643-668.
- O'Donnell, E.; Poelina, A.; Pelizzon, A. and Clark, C. 2020. Stop burying the lede: The essential role of Indigenous law(s) in creating rights of nature. *Transnational Environmental Law* 9(3): 403-427.
- Ogendi, G.M. and Ong'oa, I.M. 2009. Water policy, accessibility, and water ethics in Kenya. *Santa Clara Journal of International Law* 7(1): 177-196.
- Orlove, B. and Caton, S. 2010. Water sustainability: Anthropological approaches and prospects. *Annual Review of Anthropology* 39: 401-415.

- Ott, K.; Kerschbaumer, L.; Köbbing, J. and Thevs, N. 2016. Bringing sustainability down to Earth: Heihe River as a paradigm case of sustainable water allocation. *Journal of Agricultural and Environmental Ethics* 29(5): 835-856.
- Page, J. and Pelizzon, A. 2022. Of rivers, law and justice in the Anthropocene. *The Geographical Journal Online* advance: <https://doi.org/10.1111/geoj.12442>
- Palmer, J.R. 2000. *The ethics of freshwater: A survey*. UNESCO, Paris.
- Pauli, B.J. 2019. *Flint fights back: Environmental justice and democracy in the Flint Water Crisis*. Cambridge: MIT Press.
- Pauli, B.J. 2020. The Flint water crisis. *WIREs Water* 7(3): e1420.
- Perramond, E.P. 2019. *Unsettled waters: rights, law, and identity in the American West*. Oakland: University of California Press.
- Phare, M.A. 2009. *Denying the source: The crisis of First Nations water rights*. Surrey: Rocky Mountain Books.
- Plumwood, V. 1993. *Feminism and the mastery of nature*. New York: Routledge.
- Plumwood, V. 2002. *Environmental culture: The ecological crisis of rationality*. New York: Routledge.
- Plumwood, V. 2008. Shadow places and the politics of dwelling. *Australian Humanities Review* 44: 139-150.
- Pope Francis. 2015. *Laudato si': on care for our common home*. Huntington, IN: Our Sunday Visitor.
- Postel, S. 1992. *Last oasis: Facing water scarcity*. New York: W.W. Norton & Company.
- Priscoli, J.D.; Dooge, J. and Llamas, R. 2004. *Water and ethics: Overview*. Paris: UNESCO.
- Rademacher, A. 2011. *Reigning the river: Urban ecologies and political transformation in Kathmandu*. Durham: Duke University Press.
- Rawls, J. 2001. *Justice as fairness: A restatement*. Cambridge: Harvard University Press.
- Robins, S. 2019. 'Day zero', hydraulic citizenship and the defence of the commons in Cape Town: A case study of the politics of water and its infrastructures (2017-2018). *Journal of Southern African Studies* 45(1): 5-29.
- Robison, J.; Cosens, B.; Jackson, S.; Leonard, K. and McCool, D. 2018. Indigenous water justice. *Lewis & Clark Law Review* 22(3): 873-953.
- Rodriguez, S. 2007. *Acequia: Water sharing, sanctity, and place*. Sante Fe: School for Advanced Research Press.
- Rorty, R. 1989. *Contingency, irony, and solidarity*. Cambridge: Cambridge University Press.
- Sandel, M.J. 1982. *Liberalism and the limits of justice*. Cambridge: Cambridge University Press.
- Sax, J.L. 1969. The public trust doctrine in natural resources law: Effective judicial intervention. *Michigan Law Review* 68: 471-566.
- Sax, J.L. 1994. Understanding transfers: Community rights and the privatization of water. *West-Northwest Journal of Environmental Law and Policy* 1: 13-16.
- Scaramelli, C. 2021. *How to make a wetland: Water and moral ecology in Turkey*. Stanford: Stanford University Press.
- Schmidt, J.J. 2012. Scarce or insecure? The right to water and the ethics of global water governance. In Sultana, F. and Loftus, A. (Eds), *The right to water: Politics, governance and social struggles*, pp. 94-109. Routledge, London.
- Schmidt, J.J. 2017. *Water: Abundance, scarcity, and security in the age of humanity*. New York: New York University Press.
- Schmidt, J.J. 2021. Glacial deaths, geologic extinction. *Environmental Humanities* 13(2): 281-300.
- Schmidt, J.J. and Peppard [Zenner], C. 2014. Water ethics on a human dominated planet: Rationality, context and values in global governance. *WIREs Water* 1(6): 533-547.
- Schmidt, J.J. and Shrubsole, D. 2013. Modern water ethics: Implications for shared governance. *Environmental Values* 22(3): 359-379.
- Schorr, D. 2005. Appropriation as agrarianism: Distributive justice in the creation of property rights. *Ecology Law Quarterly* 32(1): 3-71.
- Schorr, D. 2012. *The Colorado doctrine: Water rights, corporations, and distributive justice on the American frontier*. New Haven: Yale University Press.
- Sen, A. 1999. *Development as freedom*. New York: Anchor Books.

- Shaw, S. and Francis, A. (Eds). 2008. *Deep blue: Critical reflections on nature, religion and water*. London: Equinox.
- Shah, S. and Rodina, L. 2018. Water ethics, justice, and equity in social-ecological systems conservation: Lessons from the Queensland Wild Rivers Act. *Water Policy* 20(5): 933-952.
- Sheremata, M. 2018. Listening to relational values in the era of rapid environmental change in the Inuit Nunangat. *Current Opinion in Environmental Sustainability* 35: 75-81.
- Silliman, S.E.; Hamlin, C.; Crane, P.E. and Boukan, M. 2008. International collaborations and incorporating the social sciences in research in hydrology and hydrologic engineering. *Journal of Hydrologic Engineering* 13(1): 13-19, [https://doi.org/10.1061/\(ASCE\)1084-0699\(2008\)13:1\(13\)](https://doi.org/10.1061/(ASCE)1084-0699(2008)13:1(13))
- Stefanovic, I.L. and Adeel, Z. (Eds). 2021. *Ethical water stewardship*. Dordrecht: Springer.
- Stewart-Harawira, M. 2020. Troubled waters: Maori values and ethics for freshwater management and New Zealand's freshwater crisis. *WIREs Water* 7(5): e1464.
- Strang, V. 2004. *The meaning of water*. New York: Berg.
- Sultana, F. 2020. Embodied intersectionalities of urban citizenship: Water, infrastructure, and gender in the Global South. *Annals of the American Association of Geographers* 110(5): 1407-1424.
- Sultana, F. and Loftus, A. (Eds). 2020. *Water politics: Governance: justice, and the right to water*. London: Routledge.
- Switzer, D. and Teodoro, M.P. 2018. Class, race, ethnicity and justice in safe drinking water compliance. *Social Science Quarterly* 99(2): 524-535.
- Syme, G.; Nancarrow, B. and McCreddin, J. 1999. Defining the components of fairness in the allocation of water to environmental and human uses. *Journal of Environmental Management* 57(1): 51-70.
- Syme, G.; Porter, N.; Goeft, U. and Kington, E. 2008. Integrating social well-being into assessments of water policy: Meeting the challenge for decision makers. *Water Policy* 10(4): 323-343.
- Tanana, H.; Combs, J. and Aila, H. 2021. Water is life: Law, system racism, and water security in Indian Country. *Health Security* 19(S1): 78-82.
- Tănăsescu, M. 2020. Rights of nature, legal personality, and Indigenous philosophies. *Transnational Environmental Law* 9(3): 429-453.
- Te Aho, L. 2019. *Te mana o te Wai: an Indigenous perspective on rivers and river management*. *River Research and Applications* 35(10): 1615-1621.
- Tenière-Buchot, P.F. 2004. *Water and ethics: Financial perspectives*. Paris: UNESCO.
- Thompson, J. 2016. Intersectionality and water: How social relations intersect with ecological difference. *Gender, Place, & Culture* 23(9): 1286-301.
- Tisdell, J.G. 2003. Equity and social justice in water doctrines. *Social Justice Research* 16(4): 401-416.
- Todd, Z. 2017. Fish, kin and hope: Tending to water violations in *amiskwaciwâskahikan* and Treaty Six territory. *Afterall* 43(1): 103-107.
- Trawick, P. 2010. Encounters with the moral economy of water: General principles for successfully managing the commons. In Brown, P.G. and Schmidt, J.J. (Eds), *Water ethics: Foundational readings for students and professionals*, pp. 155-166. Island Press, Washington DC.
- Trawick, P.; Reig, M.O. and Salvador, G.P. 2014. Encounters with the moral economy of water: Convergent evolution in Valencia. *WIREs Water* 1(1): 87-110.
- Ulloa, A. 2020. The rights of the Wayúu people and water in the context of mining in La Guajira, Colombia: Demands of relational water justice. *Human Geography* 13(1): 6-15.
- UN Water. 2019. *Leaving No One Behind: The United Nations World Water Development Report 2019*. Paris: UNESCO.
- UN Water. 2020. *United Nations World Water Development Report 2020: Water and Climate Change*. Paris: UNESCO.
- Vogt, L. and Walsh, C. 2021. Parsing the politics of singular and multiple waters. *Water Alternatives* 14(1): 1-11.
- von Schnitzler, A. 2016. *Democracy's infrastructure: Techno-politics and protest after apartheid*. Princeton: Princeton University Press.

- Vörösmarty, C.J.; Meybeck, M. and Pastore, C.L. 2015. Impair-then-repair: A brief history & global-scale hypothesis regarding human-water interactions in the Anthropocene. *Daedalus* 144(3): 94-109.
- Waldron, I. 2018. *There's something in the water: Environmental racism in Indigenous and Black communities*. Halifax: Fernwood Publishing Ltd.
- Warren, K. 1990. The power and promise of ecological feminism. *Environmental Ethics* 12(2): 125-146.
- Watt-Cloutier, S. 2018. *The right to be cold: One woman's fight to protect the Arctic and save the planet from climate change*. Minneapolis: University of Minnesota Press.
- Wescoat, J.L. 2013a. Reconstructing the duty of water: A study of emergent norms in socio-hydrology. *Hydrology and Earth System Sciences* 17: 1-10.
- Wescoat, J.L. 2013b. The 'duties of water' with respect to planting: Toward an ethics of irrigated landscapes. *Journal of Landscape Architecture* 8(2): 6-13.
- West, C.A. 2007. For body, soul, or wealth: The distinction, evolution, and policy implications of a water ethic. *Stanford Environmental Law Journal* 26(1): 201-232.
- West, S.; Haider, J.; Masterson, V.; Enqvist, J.; Svedin, U. and Tengö, M. 2018. Stewardship, care and relational values. *Current Opinion in Environmental Sustainability* 35: 30-38.
- Whiteley, J.M.; Ingram, H. and Perry, R.W. (Eds). 2008. *Water, place & equity*. MIT Press.
- Wilder, M. and Ingram, H. 2018. Knowing equity when we see it: Water equity in contemporary global contexts. In Conca, K. and Weinthal, E. (Eds), *The Oxford handbook of water politics and policy*, pp. 49-75. Oxford University Press, Oxford.
- Wilson, N.J. and Inkster, J. 2018. Respecting water: Indigenous water governance, ontologies, and the politics of kinship on the ground. *Environment and Planning E: Nature and Space* 1(4): 516-538.
- Wilson, N.J.; Montoya, T.; Arseneault, R. and Curley, A. 2021. Governing water insecurity: Navigating Indigenous water rights and regulatory politics in settler colonial states. *Water International* 46(6): 783-801.
- Wöelfle-Erskine, C. 2017. The watershed body: Transgressing frontiers in riverine sciences, planning stochastic multispecies worlds. *Catalyst: Feminism, Theory, Technoscience* 3(2): 1-32.
- Wöelfle Hazard, C. 2022. *Underflows: Queer trans ecologies and river justice*. Seattle: University of Washington Press.
- Wolf, A.T. 2008. Healing the Enlightenment rift: Rationality, spirituality and shared waters. *Journal of International Affairs* 61(2): 51-73.
- Wong, R. 2013. Ethical waters: Reflections on the Healing Walk in the Tar Sands. *Feminist Review* 103(1): 133-139.
- Wong, R. 2019. Lessons from prison: A shackled pipeline protestor reflects. *The Tyee*, <https://thetyee.ca/Opinion/2019/09/24/Lessons-From> (accessed 19 June 2022)
- World Bank. 2004. *Water resources sector strategy: Strategic directions for World Bank engagement*. Washington DC: World Bank.
- World Commission on the Ethics of Scientific Knowledge and Technology (COMEST). 2018. *Water ethics: Ocean, freshwater, coastal areas*. Paris: UNESCO.
- Yao, J. 2022. *The ideal river: How control of nature shaped the international order*. Manchester: Manchester University Press.
- Yates, J.; Harris, L. and Wilson, N.J. 2017. Multiple ontologies of water: Politics, conflict and implications for governance. *Environment and Planning D: Society and Space* 35(5): 797-815.
- Yazzie, M. 2018. Decolonizing development in Diné Bikeyah: resource extraction, anti-capitalism, and relational futures. *Environment and Society: Advances in Research* 9: 25-39.
- Zenner, C. 2018. *Just water: theology, ethics and the global water crisis, 2nd Edition*. Maryknoll, NY: Orbis Books.
- Zenner, C. 2019. Valuing fresh waters. *WIREs Water* 6(3): e1343.
- Ziegler, R. and Groenfeldt, D. (Eds). 2017. *Global water ethics: Towards a global ethics charter*. London: Routledge.
- Zwarteveen, M. and Meinzen-Dick, R. 2001. Gender and property rights in the commons: Examples of water rights in South Asia. *Agriculture and Human Values* 18(1): 11-25.

Zwarteveen, M.Z. and Boelens, R. 2014. Defining, researching and struggling for water justice: Some conceptual building blocks for research and action. *Water International* 39(2): 143-158.

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