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FARMERS' PLACE-BASED DISCOURSE ABOUT WATER RELATIONS: WAYS OF KNOWING WATER AND MULTISPECIES SURVIVAL

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ABSTRACT

The present study looks at farmers' discourse about water and water relations. Through qualitative interviews using the method of cultural discourse analysis (CuDA), and the framework of ecocultural dialectics, the study reveals how, as farmers talk about water, they also make explicit and implicit arguments about specific cultural relations with the biosphere, as well as the role of identity, place, and power in designing and implementing agricultural solutions to ecological and social problems. I argue that the contradictions in how farmers discursively envision the problems of water pollution and scarcity, as well as solutions to those problems in their farming practices and in society at large, are embedded with two dialectics: objectification vs. relationality and idealism vs. embodiment. Moreover, these dialectics reveal another deeper pattern of, on one hand, ecocultural fragmentation in discourses of objectification and idealism, and on the other

hand, ecocultural continuity in discourses of relationality and embodiment. Many farmers at the Rio Grande Community Farm (RGCF), the site of the present study, and some who previously farmed at RGCF and now work other traditional farming practices, produce discourse that depicts their work as part of a continuous, centuries-long fight to protect the multiple forms life (including humans) that compose shared waterways. Other farmers, while still working in the same contexts, reconstruct dominant discourses that depict humans as separate and superior to other forms of life, and support primarily technical solutions to relational ecological problems. While examples of discourse that represent the far ends of this continuum do exist, many farmers also produce hybrid discourse, and demonstrate a multivocality of ecocultural experience in their talk. As farmers and sustainability-oriented organizations envision and work toward a future of multispecies and mutual survival, they can benefit from understanding how multiple and potentially contradictory ecocultural discourses inform their members' understandings of specific water issues, as well as larger existential questions of agency and survival. Grounding their missions and learning processes in place-based direct action and leadership may offer more hope for changing ecocultural relations than focusing the vast majority of their energy and resources on technical issues, especially if the contradictions in conceptualizations of problems and solutions are unclear. Moreover, the framework of dialectics I elaborate in the present study offers examples of dealing with emotions of ecocultural anxiety, guilt, and loss in ways that can both reproduce fragmentation between people and place or enable deeper continuity between human and more-than-human communities. I argue that the distinctions in fragmentation and continuity, both in individual participants' personal discursive contradictions and across participants with

different ecocultural backgrounds, are not only tied to differences in how farmers make sense of place, water, and agricultural practices, but are undergirded by farmers' experiences and subjectivities and material and symbolic choices within a history of white colonization of Indigenous lands, ways of life, and ways of knowing and relating to water. The present study demonstrates that different cultural ways of understanding both identity-based cultural relations with water (ecocultural identities and relations) influence conceptualizations of water within the world of agriculture and can shape whole perspectives on what constitutes sustainable and just food systems, the potential for global-scale sustainable human presences in ecosystems, and just water leadership and governance.

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Chapter 1: Introduction

In the era of accelerating climate disruption, people all over the planet have turned their attention to the way human practices are reshaping and rapidly transforming hydrological cycles. Sea levels are rising and many places are experiencing record-breaking rainfall and flooding multiple times per decade, while other places like the US Southwest, the focus of the present study, are facing long, intense droughts and desertification. There is no doubt that mounting atmospheric carbon levels are altering hydrological cycles at a global scale, and that human-caused global warming is changing water dynamics at regional and microclimate scales, as well. However, climate-disruption-caused hydrological change, although pressing and accelerating in terms of atmospheric dynamics, is also only the most recent manifestation of centuries of industrial transformations in water flows.

During the past 500 years and particularly during the past two centuries, industrialized agricultural and urban developers have transformed entire regions of the world, largely through the disruption of waterways. Regional and global activities such as stream diversion for industry, mass removal of ancient forest life systems, heavy aquifer drawdown, and the use of elaborate systems for sterilization and filtration have permanently changed life systems. In addition, these activities have deeply contributed to the issues of drought and pollution facing the US Southwest, now exacerbated by climate disruption (Foster & Burkett, 2016; Moore, 2015). These processes are both visible and hidden. In the US, industrial water transformation has taken on highly visible forms, including more than 90,000 dam and reservoir projects, massive infrastructural and technological development redirecting streams for flood control (partly due to

deforestation) and irrigation and other agricultural use, as well as the nearly invisible infrastructure of more than 800,000 miles of public sewers, 500,000 miles of private sewers, and over 1.2 million miles of public pipes for drinking and tap water (Walton, 2016). Wielding this infrastructure, its expansion and maintenance, and the institutionalized cultural discourses of scientific rationalism, utilitarian nationalism, and profit-centered commoditization, US government, urban development, and agribusiness interests have worked to naturalize two anthropocentric (human-centered) notions about water: First, that water governance and conservation should be based on the scientific rationalization of water as an inert and controllable object that exists primarily for human benefit (Mancilla-García, 2015) and, second, that through this rationalization, water is best used as a means of economic growth and as a tradable commodity (Ingram & Lejano, 2009; Oravec, 1984; Swyngedouw, 2004). As such, water used in conventional agricultural practice is often not understood in terms of the riparian life-systems that it composes and supports, but as an input quantity that, despite the global-scale ecological disruption caused by its extraction, can always be produced through technological innovation and centralized technical water governance.

Through early 20th century media debates and campaigns, the US government constructed a view of dams and riparian reservoir projects as an achievement of modern civilization that would make the US a shining example of progress (Ingram & Lejano, 2009; Manilla Garcia, 2018; Oravec, 1984). In so doing, the US government fortified a paradigm of understanding water provision as a symbol of progress, technological achievement, and mastery over dangerous, wild rivers that would otherwise flood and damage that achievement, threatening, above all, the understanding of humans as

masters. Moreover, this paradigm reified a monolithic construction of diverse people as both the beneficiaries of technologically oriented water governance, and individual, average users of water who should be understood primarily in terms of units of water consumption per capita.

Yet, these dominant discourses about water, like any dominant discourses, are not all encompassing. Many place-based communities understand and talk about water primarily in terms of its life-giving and -connecting power, and practice agriculture in ways that center a web of relations among all living things (Arellano, 2014; Estes, 2019). Arellano (2014), Estes (2019), and Pecos (2007) demonstrate that, in no uncertain terms, the systematic removal of water from its ecologies, places, and processes of origin for sale is the antithesis of place-based relations with waterways, and so place-based movements for water protection and sustainable food production are also anti-global profit.

Certainly, both material and symbolic structural forces, as well as place-specific histories and present-day ways of living shape how people understand water relations. However, within these structures, I argue that everyday experiences and practices, as well as how people talk about those experiences and practices are powerful in shaping understandings of water relations. Communication scholars have demonstrated that while personal meanings and place-based discourses are influenced by and often clearly involve aspects of dominant discourse, when people use language in situated practices, they often combine, reconstruct, and transform the meaningfulness of dominant discourse (Marafiote & Plec, 2006; Ono & Sloop, 1995). Moreover, such meanings cannot be accounted for by simple combinations of binaries, such as dominant and resistant or

human-centered and ecologically-centered, but rather are complex, historically situated, and actively experienced ways of relating self and other, and making sense of emotion, action, and place (Carbaugh, 2007; Carbaugh & Cerulli, 2013; Marafiote & Plec, 2006). In the present moment of precarity concerning the availability and quality of water for all living things, many small-scale farmers, including those in the present study, are striving to build and expand place-based, ecologically restorative agricultural practices, while also working to help communities not only become more food-secure, but to gain more political and economic control over their own food systems, or to become food-sovereign (Jarosz, 2008). Many of these farmers and farmer organizations are also attempting to educate people living in their communities about the interdependence between healthy and thriving ecosystems, place-based agricultural and water practices, and the possibilities for more ecologically sound and politically, economically, and culturally equitable food systems.

Focus of the Present Study

The present study focuses on one such organization, the Rio Grande Community Farm (RGCF) in Albuquerque, New Mexico. RGCF is a 501(c)3 nonprofit organization where multiple community members, community groups, and organizations share space, soil, seed, and water in order to grow food for personal consumption and in some cases to supplement income through selling at local growers' markets, to teach people how to farm sustainably, and to support a wildlife corridor in the North Valley neighborhood of the city. The leadership of RGCF (including the executive director, farm coordinator, and a few members of the board) is also presently engaged in a multi-organization effort to become a multisite nursery (one site comprising a few acres at RGCF) for thousands of

fruit trees and to develop orchards all over the section of the Rio Grande Valley where Albuquerque is located. Over the next two decades, the goal of this project is to create what several participants in the present study call an "orchard culture" that works to enhance food security in places identified as food deserts in Albuquerque.[1] Moreover, farmers at RGCF, among many other farmers in New Mexico and around the world, are trying to imagine their own role in a precarious and uncertain future of inevitable longer droughts and hotter temperatures, among a number of other human-caused global changes in climate.

Acting to reshape our relations with water is essential. In 2018, the United Nations produced the Special Report on Global Warming of 1.5°C (also known as SR15), an aggregate report of thousands of studies from around the globe, outlining a significantly decreased timeline for reaching manageable global CO2 and other greenhouse gas levels, levels which are already dramatically changing hydrological cycles all over the planet (IPCC, 2018). Thanks to rising sea levels, "500-year floods" occurring multiple times in a decade in some regions, and increased drought, desertification, and wildfires in other regions, survival will require a fundamental shift in dominant human relations in the biosphere, and in no uncertain terms, this shift needs to happen as quickly as possible without creating more carbon. According to the more than 100 authors of the SR15, to avoid a catastrophic potential global temperature increase of 4°C over the next century and cap global temperature increases at 1.5°C, we have just over two decades to significantly decrease the quantity of greenhouse gases released into

[1] For the sake of confidentiality, I do not name the project, since I only interviewed members of the project who are also part of RGCF.

Earth's atmosphere (IPCC, 2018). At the time of the present study, 2020, climate scientists argue the window for massive reductions in carbon production is actually even smaller – just one decade.

Global agribusiness production, packaging, and distribution, as well as demand for agribusiness products, are among the largest industrial producers of greenhouse gases and greatest contributors to ecological degradation (Food and Agricultural Organization of the United Nations, 2018). Upon considering alternative routes to food production from large scale monocropping and inorganic fertilizer, pesticides, and genetic modification, the UN has concluded that small-to-medium-scale organic farms are and will always be fundamental to global and local sustainable food systems (Food and Agricultural Organization of the United Nations, 2018). Small scale agroecological practices, particularly when said practices are infused with localized knowledge and memory, have been shown to enhance, rather than degrade, biodiversity, elasticity, and resilience of local ecosystems (Estes, 2019; Nazarea, 2006). When combined with specialized, place-specific practices for conserving water, protecting and building soil life, and supporting local wildlife and habitat, small scale organic farms are and will be an integral part of multispecies survival. Human practices that both acknowledge and support multispecies interdependence are now likely the only route to survival that will be possible during the coming century (Escobar, 2008; Moore, 2015; Tsing, 2015). However, in order to foster such practices, scholars and practitioners must better understand how cultural discourses shape human understanding of, and practices with more-than-human life, including relations with life giving waterways.

Summary of Findings

Political, economic, and cultural support for small scale organic farming have been erratic, and the tendency of water governance to support small scale agriculture in New Mexico, and around the world, has been inconsistent. In most cases, governance has engaged directly in disrupting or destroying the capacity of people to practice place-based agriculture (Clark, 1987; Estes, 2019; DeLara, 2000; Lane, 2011). Particularly in the US West, access to and control over access to water have played a key role in constructing multiple forms of water governance and various "ways of knowing" water (Ingram & Lejano, 2009). The present study explores how RGCF members construct discourse about water, as well as how they perceive their work as both part of a larger life-system surrounding their farms and as a specific, ecological, and cultural way of relating to water. Beyond understandings of water within farming practices and those practices' part in more-than-human relations (Abram, 1996)[2], farmers engage in multiple cultural discourses that explicitly, or at times implicitly, construct complex and contradictory arguments about the place of humanity in the biosphere.

[2] Here I am using Abram's (1996) coining of the term "more-than-human" as a way of talking about how human health and wellness issues are primarily issues of imbalance between human communities and the larger biosphere, including place-specific ecologies. Imbalance occurs in both the flow of material and energy, as in the overabundance of particular kinds of material (e.g., pollution) and dearth of others (e.g., erosion of microorganic life in soil), and in the relational ecocultural practices humans employ in life systems of which they are part and parcel (e.g., building structures or using poisons to keep animals away from garden/farm plants or harm them vs. designing gardens that direct animals toward food grown specifically for them, and inviting multiple forms of life into the garden/farm that already helped to balance various populations). I also use this term instead of vague and binary terms such as "non-human," "nature," and "environment" as a general way of talking about animals, plants, microbial life in soil, and species and natural processes in relationship to human beings. In my writing, I represent humans as always already part and parcel to the web of life.

In order to explore these issues, the present study addresses two research questions:

RQ1: What core ecocultural meanings compose RGCF farmers' talk about water in their daily lives and farming practices?

RQ2: How does RGFC farmers' talk relate to dominant or place-based discourses about water?

In this study, I look at agricultural and place-based relationships with water as sites of multiple, dialectical cultural discourses. Particularly, I explore the ways in which farmers practicing place-based agriculture talk about and understand their personal and practice-based relationships with water. The agricultural practices highlighted in farmers' discourse center around soil health, water conservation, supporting local wildlife along the river, and food justice, yet farmers are often constrained by access to water, and the water they are constrained to use is often polluted.

The present study's findings from the analysis of farmers' talk using Cultural Discourse Analysis (CuDA) show that the differences in farmers' understanding of water relations are organized by two dialectics. Discourses are marked by dialectical tension between *objectification* and *relationality*, as well as tension between *idealism* and *embodiment*. Together, the two dialectics reveal an overarching tension between *fragmentation* and *continuity* concerning meaning about identity, relationships, action, emotion, and place regarding practices with water both in the home and on the farm. That is, on one hand, participant meanings grounded in objectification and/or idealism revealed fundamental disconnections (fragmentations) between conceptualizations of identity, relations (both human and more-than-human), actions and agency, feeling and

emotions, and sense of place. On the other hand, participant meanings grounded in relationality and embodiment revealed continuity and connection between historical and present-day sense of place, and participants' conceptualizations of identity, relations between humans and more-than-humans, and the relationship between emotion and practices with water. The tension between fragmentation and continuity is further elaborated in how participants, on one hand, suggest idealistic and technical fixes to long-term, relational and ecocultural trends (e.g., solving drought caused by climate disruption by switching all framing practices to hydroponics), and, on the other, suggest embodied (meaning both concrete and actionable) routes to building long-term plans for multispecies survival. However, the fact that many participants exhibit both fragmentation and continuity shows that they are in the process of coming to terms with these contradictions. Further, many, through engaging with place-based practices, have come to reject objectification and hyper-idealism in conceptualizations of relations and practices with waterways, and have turned to actively embody regenerative, relational ecocultural identity and practice.

Summary of Conclusions

The present study demonstrates a case that adds to the literature on farmer-produced discourses, as well as sustainability-oriented learning organizations whose missions involve working toward multispecies survival within agricultural food systems.[3] The case demonstrates how, even in such organizations, farmers understand water relations in contradictory ways, and these contradictions can constrain or enable the

[3] While "agricultural food systems" may sound redundant, when placed in the context of global agribusiness that produces a great deal of crops not for food but for manufacturing and industrial processes, delineating agricultural work for food production as important.

organization to learn, grow, and work toward its mission. Specifically, farmers in the present study talk about water through dialectical discourses that both combine and transform aspects of place-based water discourse and dominant technical and scientific discourses, but ultimately remain in tension. At RGCF, aspiring farmers tended to reproduce dominant discourses that objectify water and more-than-human life, and conceptualize humanity as both separate from and dominant over other forms of life. In so doing, these farmers also offered problematic, idealist solutions to complex ecocultural problems and challenges facing farmers, as well as life itself. On the other hand, farmers with connection to place-based communities (in the present study, heritage in acequia communities), as well as those whose livelihoods come from farming in these communities tended to understand themselves and their practices with water as part of an embodied network of life with continuity between their senses of self and understandings of relations among humans, more-than-humans, and ancient flood-based farming practices in the river valley.

Revealing this fundamental tension between fragmentation and continuity is important for a number of reasons. First, in terms of fragmentation, the present study shows how, even in the context of sustainability-based organizations, people often still construct binaries between the living systems upon which they depend and their own senses-of self and actions. However, beyond the symbolic implications of these binaries, fragmented conceptualizations (i.e., binaries between humans and humans and more than humans, place-specific life systems and farming practices, and identity and community) distort and obscure the sources of, and potential solutions to, the very water and food vulnerabilities RGCF and other sustainable farming organizations are trying to address.

On the continuity side, participants show that much of the solutions to ecocultural problems already exist, and are being practiced in embodied ways, albeit not usually at the geographic scales and cultural magnitude necessary for regional and global regeneration.

As a learning organization, RGCF, at the time of the present study, is faced with several challenges, including economic reorganization and a perceived material and symbolic need to produce healthy food for a changing community facing an increasingly precarious future. Simultaneously, multiple water governance bodies in the Middle Rio Grande Valley, including in Albuquerque, are strategizing to ensure water is available to residences and industries for the expressed purpose of economic growth and profit during the next century. While I limit the present study's analysis to farmers' talk about water, I also contextualize their talk within relevant history and government plans for water governance in the future.

In an attempt to navigate the complexity of such a precarious future, farmers' discourses reveal a spectrum of ecocultural values that range from the largely anthropocentric to the ecocentric and decidedly justice-oriented. Specifically, I argue that, as farmers take up multiple ways of knowing water, their discourse produces dialectical tension between culturally produced, emotionally driven relations with water, land, and localized life systems and larger, often dominant scientific discourses that construct arbitrary boundaries, both material and symbolic, physical and metaphorical, in flows of water. At the micro scale of water practice on the farm and meso scale of sharing knowledge for conservation, participants describe processes and plans to share knowledge expressed through scientific discourse in ways that may help farmers engage

in more careful water use. However, I argue that, when compared with place-based discourses about water that also emerge from the present study, including ancient Indigenous ecocultural discourses of shared water relations, participants' technical talk tends to be implicitly laden with anthropocentric views of what constitutes successful water conservation practice. In addition, the similarity of farmers' scientific discourse to that of oppressive water governance regimes may prove counterproductive to supporting larger efforts for food sovereignty.

As RGCF attempts to launch new programs aimed at driving food security, and eventually, food sovereignty, in a community that draws deep ecocultural meaning from decidedly anti-capitalist ways of sharing water, I argue that farmers will benefit from more openly and directly supporting the ecocultural struggles that, as the present study demonstrates, are the only reason RGCF farmers can practice place-based farming. Put directly, in order to be accepted, and therefore effective, as a force of food and ecological change toward multispecies justice and survival in the larger Albuquerque community, the RGCF will have to directly confront the contradictions in how it approaches water as simultaneously a shared source and force of life, *but also* a product and commodity. My study illustrates contradictions in how farmers' discourse engages with larger cultural discourses, on one hand, of human control and domination, commoditization, and human-centered goals, and on the other, of shared and open knowledge, support of ecological and cultural justice, and the recognition of more-than-human agency in the biosphere, and therefore a reorientation of water practices and the meaningfulness of those practices.

Preview of Chapters

Here, I lay out the following chapters of the dissertation. Chapter 2 is a review of relevant literature in the fields of environmental communication and political ecology. I look at scholarship on how environmental discourse, or situated, cultural talk about relations of life beyond humanity, is always laden with either implicit or explicit values about the place of humans in the biosphere, as well as values about more-than-human life. Ecological-cultural, or ecocultural, value systems range from anthropocentrism, a value orientation in which humans see themselves as the dominant species, as well as the dominant force of control and power on the planet, to ecocentrism, a value orientation that sees humans as one part of a vast web of life systems and relations (Herndl & Brown, 1997; Marafiote & Plec, 2006; Milstein, 2009). As individuals and institutions put these ideological value systems into material practice, people enmeshed in anthropocentric discourse see the biosphere as a pool of resources available, to varying degrees, for human accumulation, consumption, and of value only in relation to human desires, needs, and use. People engaged in ecocentric practices and discourses tend to describe an inherent value in all forms of life and attempt to engage with ecologies for survival in ways that create balance between what humans take for their own needs and what they give in return to the ecological systems that give them life. I explore how, as farmers construct cultural ways of knowing and talking about water, they describe practices and values that span a spectrum of ecological ideologies and how these intersect with, shape, and are shaped by culture. I also explore Political Ecology (PE) literature to show how specific ecocultural understandings are not only shared ways of knowing and living, but can both obscure and reveal powerful interests. I look at how powerful capitalist and (inter)national interests construct and shape actual ecological vulnerabilities and

understandings of those vulnerabilities (Mancilla-Garcia, 2009; McClintock, 2010; McMichael, 2014).

In Chapter 3, I lay out the methodology of the study, which is cultural discourse analysis (CuDA). CuDA is particularly useful for looking at ecocultural discourses because its framework is open to the notion that place, and relations with and in place with multiple forms of life, are powerful in constituting humans' cultural ways of understanding themselves, as well as their relationships, emotions, and actions. I use CuDA to answer the following two research questions:

RQ1: What core ecocultural meanings compose RGCF farmers' talk about water in their daily lives and farming practices?

RQ2: How does RGFC farmers' talk relate to dominant and place-based discourses about water?

In Chapter 4, my data analysis chapter, I apply CuDA to analyze farmers' talk produced during interviews that took place on the farm at RGCF and in farmers' home farms and gardens, interpreting core ecocultural meanings about water relations that emerge from the interviews. I then apply the theoretical framework of ecocultural dialectics and ways of knowing water in order to understand how farmers' talk relates to, and constructs, ecocultural ways of relating and acting in their specific ecologies and social relations that are both place-based and dominant.

In Chapter 5, I summarize the study's major findings and arguments, as well as the successes, limitations, and conclusions. I then return to the EC and PE literatures to make the case for the contributions of the present study to these literatures. Finally, I conclude with a discussion of the study's implications for future research.

Chapter 2: Review of Literature

In this chapter, I summarize relevant extant literature and arguments from the fields of environmental communication, political ecology, and cultural studies in order to tease out the importance of looking at place-based ways of knowing water, and how those ways of knowing are constructed through discourse, when trying to understand global and local problems of pollution, drought, and scarcity. Proponents of place-based ways of knowing water complicate and challenge arguments made through technical measurement and economic profit and growth models about what constitutes the best use of water, and therefore, who gets to govern how water flows. If climate change policy is to include practices with water in drought affected areas that are both ecologically and culturally-informed and just, the centering of place-specific understandings of relations with water is essential.

Chapter Layout

In New Mexico, as in many places, the interaction of different understandings of relations and practices with water (water discourses) in agriculture are consistently called into question – the Rio Grande is the only reason people have been able to live in this region for thousands of years. Many in NM and around the world understand water as the source of all life and cherish water as a sacred being and force that provides food and health (Estes, 2019; Pecos, 2007). For development interests, while the need for water for survival is a given, water is largely understood as a necessary quantity of the chemical element (H_2O) in the development of urban places that, when measured, controlled, and manipulated properly, affords the power to govern and amass wealth. Within this frame, the capitalist understanding of water also emerges: water can be extracted and alienated

from place-based and mutualist relations and commodification for profit in capital markets. In this review of literature, I highlight scholarship that shows that the present-day juxtaposition of these different and highly contentious ways of knowing water is not only a conflict over the policies of water management, but demonstrates, on one hand, the legacy of water governance that supports and normalizes the colonial dispossession of Indigenous people's ancestral lands and waterways, and on the other hand, the ongoing, Indigenous-led place-based struggle to restore and regenerate mutual ways of living and leading based on multispecies survival (Estes, 2019; Matthews, 2018).

This chapter explores environmental communication (EC) and political ecology (PE) literature that helps to establish a framework for analyzing talk about human relations with processes of life and life itself, and particularly relations with water. I explore EC scholars' empirical study of discourse (talk in context) about ecological relationships, and human actions within those relations. I pull from scholars' work that relates ecocultural ideologies with discourses, and looks at the relationship between culture and ecology inherent in various ideologies. In so doing, I examine relationships between discourse, ideologies that compose a spectrum between anthropocentrism and ecocentrism, how these intersect with multiple forms of the culture/nature binary, and the ways in which specific, contextualized discourse often operates through dialectics rather than simply presenting contextualized versions of one ideology or another.

Dialectics are a way of explaining why simply binaries often fail to capture contradiction, complexity, and variation of meaning and experience. Dialectics generally involve two contradictory or opposing but simultaneously present forces that exist in tension with one another. In environmental communication, dialectics explain, for

example, why people might simultaneously talk about humans as fundamentally separate from and superior to other forms of life (e.g., the argument that the powers of language and self-reflection make humans completely unique and more intelligent than any other animal), but also feel a deep desire to be more connected with the more-than-human world in ways that blur distinction (Milstein, 2009). Dialectics show that individuals might understand themselves as simultaneously separate from yet one with nature. However, I align with EC theorists (elaborated below) that dialectics are generally not stable, equal but opposite forces. Rather, one pole of a dialectic is usually dominant in how cultural institutions discursively reproduce both understandings and relations (e.g., separation and superiority over connection and equity). As such, dialectics can also be understood as material and symbolic struggles for power.

In theorizing the culture/nature binary, I draw from both EC literature to look at the interaction between symbolic and material binaries, PE literature, including the "ways of knowing" water framework (Ingram & Lejano, 2009) and metabolic rift (McMichael, 2014), to help theorize how the culture/nature binary is (re)constructed in dominant water discourses and often questioned and resisted in place-based water discourses. I access these sets of literature in order to build a theoretical framework that, when applied through the method of CuDA, creates a robust framework for analyzing farmers' talk about water in their lives and farming practices.

In sum, in this chapter, I first look at environmental communication literature, and specifically, the project of ecocultural communication in order to construct a theoretical basis for studying how imbrications of cultural and ecology and how different constellations of ecocultural experiences, identities, and belongings influence water

relations and practices. Within ecocultural studies and ecocultural communication, I look at how scholars address discourse, power, conceptualizations of self and other, and human-more-than-human relations in order to build a conceptual framework for understanding farmers' talk about water. I then look at political ecology scholarship to understand how discourse and material practice with water are always already part of multiple ways of knowing. I also explore PE literature in order to theorize how concepts like water scarcity and abundance are not simply ways of describing more or less quantity, but are also politically and ideologically laden discourses and material practices through which disparate experiences of water relations are produced. Finally, I summarize and synthesize these literatures to build a theoretical framework that helps guide my analysis and conclusions chapters.

Environmental Communication: Discourse & Ideology

Environmental communication scholars have documented a broad range of ideologies when comparing various cultural ways of constructing human relations with other life systems. Scholars argue that ideologies tend to fall somewhere on a spectrum between "anthropocentric" and "ecocentric" (Herndl & Brown, 1996; Marafiote & Plec, 2006, Milstein, 2009; Milstein & Dickinson, 2012; Milstein, Thomas, & Hoffmann, 2018). Anthropocentric-leaning discourses position humans at the center of nature, masters over other forms of life, and are largely founded upon a dualism, or binary, that separates humans from other forms of life and natural systems. Ecocentric leaning discourses, on the other hand, tend to position humans as one small part of a web of life relations and processes upon which everything, including humanity and culture, are dependent. To be clear, while environmental communication scholars often theorize

anthropocentrism and ecocentrism as discursive concepts at opposite ends of a continuum, the continuum itself is a model for making complex, messy ways of knowing simpler and easier to compare. In reality, ecocultural ideologies, as they emerge from situated cultural talk, often overlap, become hybrids, and contain aspects of both anthropocentrism and ecocentrism simultaneously (Marafiote & Plec, 2006; Milstein, Thomas, & Hoffmann, 2018). I use the frame of anthropocentrism and ecocentrism as a guide for looking at farmers' talk about water, but particularly focus on the forces pushing and pulling toward either side of the spectrum in farmers' talk (i.e., objectification, idealism, relationality, and embodiment), as opposed to using the concepts of anthropocentrism and ecocentrism as ideological buckets in which to place different individuals.

Environmental communication (EC) scholars warn that it is all too easy to fall prey to considering that through naming and identifying an ideology present in a discourse (e.g., conservationism, preservationism, or ecofeminism), scholars can level critiques or bolster solutions to environmental problems simply by arguing for one ideological orientation and against another (Carbaugh, 2007; Cox, 2007; Schwarze, 2007). Rather, rigorous research must recognize that discourse and ideology do not share a one-to-one relationship; discourse is the practice of communication in contexts in which, as people engage with language within and about cultural practices, they make implicit and explicit arguments about what counts as knowledge, power, and reality (Foucault & Nazzaro, 1972). In so doing they (re)imagine, enact, and sometimes resist historically dominant ways of knowing and treating themselves and others, including in their relationships with the more-than-human world.

While dominant or civic discourse very often appears monistic (Marafiote & Plec, 2006; Ono & Sloop, 1995), when incorporated into situated talk, dominant discourse is often combined with other discourses to form hybrid discourses, and hybrid understandings of human relations with the more-than-human world. Moreover, vernacular discourse, or, as the present study discusses, place-based discourse, can be both dominant and resistant, and more often than not is produced as a dialogic between multiple discourses and ideologies (Marafiote & Plec, 2006) or as dialectical between opposing ideas or ideologies (Milstein, 2009; Milstein & Dickinson, 2012).

Dialectics in Environmental Discourse

Milstein (2009) demonstrates empirically that cultural discourses about relations between humans and other forms of life are often embedded with dialectical tensions between conceptualizations of "mastery vs. harmony," "othering vs. connection," and "exploitation vs. idealism." Mastery vs. harmony dialectical discourses oscillate between representing humans as masters over other animals and ecological processes and representing human actions as being (potentially) in harmony, balanced, and integrated with other life forms and ecological processes. Othering vs. connection discourses move along the tension between seeing more-than-human life as simultaneously opposite and less-than human beings, and language that describes humans and other life forms as connected and interdependent. Finally, discourses are pulled between the tension of human desire and tendency to exploit ecological relations, such as extractivist industry, and idealistic understandings that nature will be fine because of its vast abundance and capacity to heal itself. Milstein (2009) shows that without structural intervention, while discourses may present both sides of these dialectics symbolically, history and present-

day practices show that the mastery, othering, and exploitation material practices tend to win out. As a result, Milstein (2009) calls for an "ecocultural approach" to studying communication, arguing that cultural and natural systems have always been co-constitutive, and that in order to work toward more ecologically and culturally just realities, scholars should demonstrate how apparently isolated human practices and structures are always already dependent upon, can potentially be interdependent with, and shape and are shaped by, the more-than-human world.

The present study also builds upon Oravec's (1984) foundational work on conservationist and preservationist ideology and discourse. Oravec (1984) shows how the debate over the fate of the Hetch Hetchy Valley (in what is now Yosemite National Park) regarding the dam approved to be built in 1913, represented two dominating views, conservationism and preservationism. Conservationism, which Oravec (1984) argues largely dominated the debate and subsequent US water policy, involves "'the greatest good for the greatest number.' In other words, conservationists (read as proponents of this dominant ideology, not "people who conserve"), argued that the material needs of numbers of identifiable individuals represented 'the public interest,' hence their support for the dam. Preservationists, on the other hand, argued that to save the beauty of the valley served a more generally defined 'national' interest" (p. 444). This represents a larger trend of the winning out of "progressivism, or America as a collective population of individual units," over nationalism, "with America viewed as an organic nation, the whole greater than its parts" (p. 444).

Oravec (1984) demonstrates that within conservationism, the logical or rational way to conceive of water is to measure its quantity and categorize all individuals and

practices as in terms of "units of use." Within this logic, as long as there are enough units of water per unit of user, the object of the analysis of particular practices in particular places is limited to the quantity of water that can be provided at a given moment in a given place. Moreover, Oravec highlights the long-standing precedent in US dominant discourse and practice to privilege humans (particularly white humans) over any other form of life or system when designing water policy. Yet, in Oravec's study, in the separation of humans from the ecological systems upon which they are always already a part and dependent, whether or not humans actually benefit from conservationist water policies is unsettled. The present study works to advance this argument by looking at the way that RGCF farmers both reproduce and challenge the discourse of individuals as "units of use" of water in different utterances and in different participants' interviews. As the study demonstrates, although several participants' understanding of particular conservation practices is influenced by the discourse of individual units of use, particularly in terms of technical descriptions, these same participants complicate contradict "units of use" discourse through emotional and place-specific descriptions of traditional farming and irrigation practices as mutualist relations with multiple more-than-humans. The following section looks at how ecocultural scholars theorize concepts of self and other, and how I use those conceptualizations to explain how farmers understand personal, place-specific, and societal relations with water

Ecocultural Communication: Construction of Self and Other

Ecocultural communication is a transdisciplinary project within environmental communication that centers cultural ways of relating with the more-than-human world, and is grounded in the ontological notion that culture and ecology are always already

enmeshed and co-constitutive. Ecocultural communication scholarship is grounded in multidisciplinary studies from culture studies and critical anthropology (Escobar, 1999, 2001, 2008), neo-Marxist critique (Hartley; 2015; Moore, 2015) to ecofeminist theory (Plumwood, 1991; Rogers, 1998). Within the ecocultural project and in the present study, I am looking at the ways in which dominant place-based discourses relate to farmers' situated talk about water. The interpretive-critical analysis I employ demonstrates that as farmers make sense out of human relations with water, including making sense out of contested issues such as scarcity and pollution, as well as how they envision problems to these solutions, their talk is sometimes influenced by both dominant and place-based discourses. Hartley (2015) and Moore (2015) demonstrate that over the last 500 years, capitalism has transformed the more-than-human world to such an extent that regardless of a given ecocultural way of relating to water (for example, as a mutual life form, a product, or a resource), the destructive transformation of human and more-than-human life for profit has shaped all water relations.

Escobar (1999, 2001), Peterson, Peterson, & Peterson (2007), Plumwood (1991), and Rogers (1998) argue, however, for a nonessentialist treatment of relations and practices of humans and the more-than-human world. For example, Plumwood (1991) argues that Western philosophy's grounding in Kantian rationalism is the origin of idealist notions of self and other, in which the power of discourse practices to reinvent whole material worlds is boundless. This helps to explain why many ecologists, scholars, and scientists favor rights-based, generalizable, scalable conceptions of human and more-than-human relationships over place-specific, nonscalable relationships based on mutuality. Examples of such idealisms emerge in the present study when participants

suggest regional and global scale singular technological fixes (e.g., solving drought by growing most or all food through hydroponics), in which the myriad embodied and related processes resulting in drought, both ecological and cultural, are reduced to the mere absence of water.

Plumwood (1991) argues that these idealist frames inform even sustainability philosophies such as deep ecology,[4] and constructs an important critique of how idealist notions of self and other often permeate and inoculate what could be radically sustainable, place-specific ways of approaching ecocultural issues. Plumwood critiques three accounts of the "self in relationality" to "nature" in deep ecology. She deems these three accounts the "indistinguishability account," the "expansion of the self," and the "transcendence account." The indistinguishability account is a rationalist claim that humans should understand human selves as indistinguishable from "nature": "I protect the forest," one would argue; "I am the forest, the part of the forest recently emergent into thinking, so I protect myself." While the sentiment is actually "good and right," Plumwood argues, the practical implications are dangerous – this offers no autonomy and uniqueness in our interpretation of others in the natural world, and is often argued as "rights for nature," which end up applying human needs to more-than-human beings in ways that are at best incongruent, and at worst absurd (e.g., trying to apply the right to "not be killed and eaten" in a rainforest). The "expansion of the self" account and the "transcendent account" commit the same metaphysical errors in that they only give

[4] Deep ecology is a primarily axiological environmental philosophy that argues for the inherent value of all forms of life, regardless of their utility to humans. Deep ecology also argues for an idealist praxis restructuring of governance and societal institutions based on this axiology (e.g., giving rights to more-than-humans and deliberating justice for more-than-humans in courts).

credibility to forms of attention to more-than-human nature in detached, non-particular ways. Plumwood argues this same form of reasoning has been used to objectify women and people of color, including Indigenous and place-based peoples, and deprive them politically and ecoculturally of their particularity and therefore, relational humanity. Rather, Plumwood suggests a feminist "ethic of care" in which care for "ecology" is rather the complex and non-essentialized, non-idealist aggregation of very specific kinds of particular care for others and recognition of oneself as interdependent with more-than-human others.

In the present study, I take up Plumwood's arguments about self and other, and interpret how farmers explicitly or implicitly construct senses-of-self and other through idealism and objectification on one hand, and embodiment and emplaced relationality on the other (e.g., "I want to be the exemplar of water conservation and sustainable agriculture in New Mexico "I think of myself as very careful with water at home"; "I feel very guilty about how much water I use, but I am not going to change, because it's convenient"; "When you look at me, you see water. Water is most of my body, so how could you ever own water? It would be like owning people"; "I want see us work toward keeping water in New Mexico, to support the all of the life and ways of living that have been here for a very long time, and not carting water off to other places that are not accustomed to having so much, like piping water out to all of these new developments"). I then look at how the different identities constructed in farmers' talk relate to the way that dominant and place-based discourses depict identity (e.g., people are "users of units of water/year" vs. "protectors of mutually shared waterways"). These comparisons help to demonstrate how larger scale discourses relate to situated talk, and how farmers' core

constructs for senses-of-self in relation to water relate to their farming practice as an ecocultural lifeway. In the next section, I access EC scholars use of the specific analytical tool of ecocultural dialectics, and demonstrate how I use ecocultural dialectics in the present study.

Ecocultural Dialectics and Studies of Discourse in Practice

Ecocultural scholars Dickinson (2014), Milstein (2009, 2011, 2014), and Milstein et al. (2011) argue that study of culture must include collective of forms of relationality and the meaningfulness of that relationality between humans and the more-than-human world. Scholars take various theoretical and methodological approaches, but generally attempt to critique and offer alternatives to understandings of identities, practices, and institutions as only grounded in Western human/nature or culture/nature binaries. Within the ecocultural project, communication is understood as verbal and nonverbal practice, human and more-than-human, that constructs and mediates the meaningfulness of ecological relationships. The social, political, and economic are all, in their own ways, understood as always already ecological, and agency is a relational phenomenon that exists within and between human and more-than-human beings and systems. Ecocultural communication takes a concrete political position and duty to work to change human systems in ecocultural relations to be more ecocentric (Dickinson, 2014; Milstein, 2011; Milstein et al., 2011). The conceptual distinctions from most other communication studies begin at the moment of acknowledging that the more-than-human world has powerful agency in constructing human understandings of the world and relationships. The word “ecocultural” itself, in addition to calling for opening of the field to multidisciplinary perspectives, is a critique of the material-spatial and place-based

implications of the word "environment," as separating humans from nature. This critique is a launching point for a nonessentialist cultural-materialist approach to studying human-more-than-human relations. The term "environment" is based on rationalist, mind/body, body-internality/environment-externality sets of binaries. "Ecocultural" invites scholars to describe, critique, and suggest the material realities from which relational discourses emerge and to which they always return, both mediating one another. In addition, "ecocultural" centers cultural communication as emergent from and simultaneously constructive of human-ecological and human-more-than-human relation.

In ecocultural communication research that looks at culture and discourse, researchers recognize that language in use is more often "hybrid," in that it calls upon and reconstructs multiple, potentially contradictory environmental ideologies in single utterances. Marafiote and Plec (2006) make a compelling argument to account for hybridity in situated talk about human-ecological relations based on Bakhtin's theory of heteroglossia. Milstein's (2009, 2011, 2014) and Milstein and Dickinson's (2012) work is based on these foundations and argues for dialectical understandings of communication in which binaries such as human/nature, nature/culture, material/symbolic, are rather than binary, seen as connected to one another in dialectical tension. For example, Milstein (2009) studied institutional zoo discourse and found tension along dialectics of othering-connection, mastery-harmony, and exploitation-idealism emerge from the material realities and are reconstructed in discourse. Moreover, Milstein (2009) argues, taking up feminist interpretations of dialectics, that the Hegelian resolution or synthesis of dialectics rarely occurs in practice, and that, instead, one side of any dialectic is discursively and materially bolstered and maintained as dominant in a hierarchical

relationship over the other, in these cases the first part of each of the three dialectics being the dominant one.

Milstein (2009, 2011, 2014) and Milstein and Dickinson (2014), argue that without critical intervention, cultural dialectics between dominant communicative practices and transformative goals tend to favor the replication of dominant practices while transformative goals remain an afterthought. Dickinson (2014) further complicates the notion of dialectic in the context of forest service field trips in the way that adults construct "schizophrenic" discourse and practice for children and reinforce a destructive "get close-stay away" dialectic. In this dialectic, children are simultaneously encouraged to "get close" to nature (e.g., go out on field trips and experience it themselves first hand), but also are then forced to "stay away" in extremely contradictory and violent ways, (e.g., one child being stung by a bee and then a parent demanding that a forest ranger have the entire beehive destroyed in the middle of the forest, and the forest ranger obliging). In addition, more-than-human entities are discursively assigned generally Western human fears and anxieties such as the deep fear of death based on loss of sense of self and control. These myriad get close-stay away messages, when placed in the context of the history of the forest service reconstruct the "utilitarian," "greater good" and "highest use" of forests for human consumption (Oravec, 1984). Dickinson calls for education that recognizes the problematic contradictions in this dialectic and an eventual rejection of the dialectic and replacement with more ecocentric, non-instrumentalist forms of relating with more-than-human life, at least in the forest service.

Before summarizing how I take up ecocultural dialectics in the present study, to further clarify and home in on the notion of understanding and rejecting destructive

dialectics, I rely upon the work of Indigenous scholars' and Indigenous studies scholars' to further theorize the politics of rejection for which Milstein (2011) and Dickinson (2014) call. Estes (2019) argues, along with a plethora of Indigenous and American Studies scholars (e.g., Coulthard, 2014; Deloria, 1998; Simpson, 2014), that the Hegelian dialectical resolution, or the notion that the two opposing forces of a dialectic eventually meet and transform one another into a single unity, fails to account for place-based ways of knowing and Indigenous (and other people of color's) survival as well as ecocultural practices, both materially and symbolically, within a colonial state whose principal ecocultural identities are constructed upon the negation of place-based cultures.

Estes (2019) makes a decolonial critique of dialectical resolution, highlighting the myth of a dialectical relationship between colonizers and Indigenous people in the US, or the idea that colonizers have shaped Indigenous ways of being just as much as Indigenous peoples have shaped settlers' identities. The US, as a settler colonial state occupying Indigenous land, has produced white subjectivities that, rather than actually existing in dialectical tension with Indigenous subjectivity, contain the entire contradiction and tension of the dialectic within their own identity. Rather, place-based ways of knowing and being have never required an intersubjective relationship with colonialism to make sense of their identity. That is, place-based ecocultural identities are grounded in mutual relations with place and more-than-humans, while colonizer ecocultural identities are grounded in the domination and negation of mutual, equitable relations with other humans and more-than-humans. Thus, the construction of colonizer ecocultural identity distorts place-based ways of knowing in order to make sense of the colonizer's self-proclaimed right to govern. On the other hand, place-based Indigenous peoples, while

deeply affected by the violence of colonization, have decidedly refused to incorporate the contradictions of the white settler identity, including selves based on practices of domination of more-than-humans and the destruction and commodification of waterways, into their ecocultural identities and forms of governance (Estes, 2019; Simpson, 2014).

In the present study, I take up dialectics as a tool for analyzing tension in how farmers' make sense of water in their day-to-day lives and farming practices. I follow critical Indigenous and ecocultural scholars' work in rejecting the Hegelian synthesis and resolution of dialectical tension as the ultimate result of dialectical tension between dominant and place-based discourses and ways of being (i.e., I reject the notion that, especially at the macro level of water governance, highly disparate ways of knowing water and relating to water might somehow resolve into a transcendent hybrid way of knowing water, and that ecocultural identities will influence one another until they are homogenous). Rather I look at farmers' talk for instances of unresolved tension in personal meanings about water and how those tensions reveal core ecocultural constructs about human identity, relationships, and emotions constructed through practices in the more-than-human world. Put simply, I look for contradictions and continuity in participants' talk about water, and examine the core ecocultural meanings and tensions that both influence and get reproduced by participants as they talk. Upon noting these contradictions (or the lack thereof), I interpret the meaningfulness of said contradictions in farmers' work to envision and affect the future of water relations in New Mexico. In the following section, I look at the ways of knowing water framework in order to describe a spectrum of ways of relating to water, both dominant and place-based. This spectrum helps to characterize the meaningfulness of and tensions within farmers' talk by

providing the historical-material context of specific statements about water and human relations with water.

Political Ecology and Water discourses: Material and Symbolic Flows

PE scholars often distinguish between dominant water discourses and local, place-based, culturally specific discourses (Mancilla-García, 2015), and often, as they set out to study the differences and interaction between local and dominant discourses, have found that personal and relational cultural meanings compose local discourses, and scientific and technical meanings tend to compose dominant discourses (Budds, 2009; Sultana, 2013). Moreover, bodies of governance have often been found to employ dominant scientific and technical discourses, and to be biased toward conceptualizations of water that view privatization and market value as the preferred structures for water provision, including when water is discussed in terms of conservation (Allan, 1999; Cooper, 2002; Fahlund, Choy, & Szeptycki, 2014; Taylor, Longboat, & Grafton, 2019). On the other side of this oft-represented dichotomy, place-based cultures are often found to favor discursive representations of water as a collective right, a sacred relationship with land and other forms of life, and a community resource that should be managed through some form of common ownership (Arellano, 2014).

Scholars have written extensively about water discourses at the local, regional, national, and global levels (Strang, 2006). Discourses about water, just as discourses in general, are often both functional and descriptive, in that they describe the world upon the foundation of particular ideological assumptions, while also functioning as tools for reproducing relationships and actions that work toward making that world a reality (Linton, 2010; Linton & Budds, 2014). Water discourses conceptualize water at once as

material and symbolic (Cooper, 2002). Water is a fundamental necessity of all life forms, and an integral part of all ecological systems, including human-constructed systems, and exchanges of energy and material, or metabolisms. Because water is both ubiquitous and powerful – i.e., all life depends upon it from the smallest biological and inorganic processes to the largest movements of material on the planet – culturally specific talk about water regularly implies or explicitly constructs meaning at multiple levels, from the personal and relational (human and more-than-human) to governance and macro level discourse.

Scientific and Technical Water Discourses

Historically, physical scientists have conceptualized water as an objective force and element of nature. Budds (2009) demonstrates that through the development of hydrology as a field of study within Western positivism, water was systemically conceptualized as a presence in natural systems that followed a specific, reliable, objective cycle – the hydrological cycle, or "water cycle" – composed of various flows and changes in state (e.g., precipitation to streams and surface water to both ground water and passing through plant and animal bodies, returning via evapotranspiration and biological functions to atmospheric and groundwater, and eventually to oceans, evaporating again to continuously precipitate and (re)produce stream sources). While, generally, no one disagrees that these processes are taking place, when taken alone, as the hydrological cycle often is in physical sciences (Mancilla-García, 2015), water sciences discursively separate water as a "natural" phenomenon that is completely measurable and understandable distinct from human systems. Within dominant scientific discourse, water, conceptualized as the molecule H_2O, is understood as a finite quantity. That is, all

the water (hydrogen and oxygen) on planet Earth that will ever be here is already here and always has been; it has just taken different forms. This prehistorical status within scientific discourse often leads to a conceptualization of water as a neutral entity – one that, with the most accurate and precise tools, can be measured and controlled (Mancilla-Garcia, 2015).

Political ecologists and science studies scholars, who seek to situate scientific assumptions, methods, results, and conclusions in historical and cultural context, have demonstrated that scientific measurement and the results and conclusions drawn from that measurement are often influenced by the cultural beliefs and practices of the scientists (Franklin, 1995). Moreover, discourse studies and environmental communication scholars have also demonstrated that, beyond the bias of a specific person's cultural attitudes, positivism is a cultural discourse, or a way of simultaneously talking about and engaging in practice related to the subject matter of study that is not neutral, but rather a reification of specific cultural assumptions and particular interests (e.g., the separation of humans from nature, the reproduction of the notion that humans have an endless capacity to control nature and bend ecological elements, processes, and relations to their will as a measure of power and success, and the inherent truth of conclusions made through scientific inquiry, as opposed to other forms of inquiry [Bäckstrand, 2004]).

For the sake of the present study, two issues in particular have arisen from the dominance of this conceptualization within science. First, because proponents of positivist discourses render humans and societies as separate from ecological systems, having mastered flows of water for their own uses, far too little scholarly attention has

been paid to the ways in which ecologies of water and humans are related to and reproduced by one another. The present study aims to respond to the call of environmental communication scholars, political ecologists, and science studies scholars to demonstrate how human communication is part and parcel of ecological systems, as well as how communication is shaped by and shapes those systems.

Second, scholars have demonstrated that the capacity to measure and produce knowledge within the cultural discourse of positivism has long been articulated (Hall, 1986) with the capacity for governance of water as a resource within Western concepts of leadership. In other words, the power to govern human practices and access to water has become increasingly derived from material access to the equipment and technology to measure, and intervene in, water systems, and from cultural access, through access to and practice of scientific and technical discourses, to produce technical knowledge about water. Mancilla-Garcia (2015) argues that

> the technical understanding of water – which has enjoyed a dominant position – describes water as an apolitical and merely technical issue that would threaten society if unmanaged. If, on the contrary, it is managed with the appropriate technology, it constitutes a source of economic growth and progress. (p. 127)

Particularly in the United States, the discourse of conservationism has been championed by technocrats as both the best use of water for the most people, and within that best use, the technological means to control the distribution of water, and therefore, waters' governance (Oravec, 1984). The present study will look at conservation discourse within

the context of farmers' talk about water relations, with governance among those relations and structures discussed.

Third, within scientific discourses, the measurement itself of water is also considered a neutral practice that provides consistent truth about different uses of water and how those uses should either be supported or discouraged (Mancilla-García, 2015). That is, hydrological discourses often represent water as a neutral entity/quantity, determine its governance through the capacity to measure available quantities and determine most beneficial uses for those quantities, and represent those measurements as capable of giving final, *complete*, and neutral knowledge about water. However, scholars have demonstrated that regardless of scientific rigor, conservation logics are often built upon some forms of measurement and decidedly not others (e.g., measurement of municipally recycled water's contribution to aquifer recharge, but not traditional flood irrigation's contribution to aquifer recharge). Similarly, beneficial use is also often determined through some measurements and not others (e.g., agricultural water must be used in ways that maximize root absorption by agricultural plants and minimize wasteful run-off, but do not consider the overall health of the soil or nonagricultural plants' and animals' need for water). Political ecologists argue that this inclusion and exclusion of particular measurements is not arbitrary, but rather systematically affirms the legitimacy of particular logics of governance (Sultana, 2013). The privilege of technical discourses has led to particular measurements, particular logics of explanation of those measurements, the ways that various kinds of water use are represented, and influences on how water governance structures decide to distribute or not distribute water.

In terms of ecocultural communication, Milstein (2011) explores the practice of "pointing and naming" on whale-watching tours, arguing that while scientific forms of identification (studying of orca behavior, family groupings, communication, etc.) have contributed to monumental changes in human relations with orcas from overtly violent to relatively more respectful, the practice of identification is still generally based in rationalist understandings of reality and praxis, which privilege individual entities and their identities over understandings of relationality. This means that pointing and naming tends to "front-stage the entity and…back-stage the ecology" (p. 4). Milstein then takes her critique to suggesting more ecocentric practices not only for tour attendees, but for the tour industry itself, on the grounds that, following Pezzullo's (2007) call, the tour industry is uniquely positioned to comment on the still unequal and destructive human relations with orcas along the coast. The idea here is that this critique will bring about systemic agency to change relations through aggregated individual action and calls for industry change. These ecocultural and environmental communication studies demonstrate that, in practice, environmental education programs and organizations, such as the toxic tours and whale-watching tours, and like the farming education programs at RGCF, the site of the present study, must go beyond scientific and technical discourse if their goals include meaningful change toward more equitable and regenerative ecocultural relations.

Ways of Knowing Water: Historical Governance, Science, Markets, and The Endurance of Place-based Ways of Knowing

Ingram and Lejano's (2009) historical analysis of water relations in the US demonstrates how particular "ways of knowing" water have developed as ideological and

practical functions of society. Here, I use the term "ways of knowing" not only as a description of epistemology, but as a historical materialist analysis of how water discourses have emerged in the US That is, talk about water often explicitly argues for, or implies. a driving ontology of human existence in the biosphere, and epistemology, or what counts as knowledge when trying to understand water, including different human relationships to water, and potentially other forms of life, depending on the epistemology. Further explicated or implied within ways of knowing are value orientations to more-than-human life within and cultural practices. A "way of knowing" encompasses symbolic and material practices and ideological orientations to life.

Water as a Product

From its inception, the US Army Corps of Engineers (USACE) has been a major player in natural resources and civic projects. The US Supreme Court case *Gibbons vs. Ogden* "clarified that federal authority over interstate commerce included riverine navigation" (Ingram & Lejano, 2009, p. 63). While state and local authorities have often made federal projects work to the benefit of their own locations, federal involvement in water projects in the US "is as old as the republic" (Ingram & Lejano, 2009, p. 63). USACE has always been, in part, composed of large-scale, subsidized water projects that centralize authority and scientific expertise in water governance (Maass, 1951). During the progressive era of the United States, the 1902 Reclamation Act created the Federal Bureau of Reclamation, which became the largest technocratic arm of the US government in terms of water governance. In the setting for the present case study, the Bureau of Reclamation has built, to date, six large dams on the Rio Grande, in addition to the San

Juan Chama Project, which diverts large volumes of water from the San Juan River in the Colorado River basin to the Rio Grande watershed.

In terms of a "way of knowing" water (Ingram & Lejano, 2009), the US government has largely operated based on a "water as a product" orientation (p. 63). The material aspect of this ideology, water as a product, is understood as the technological expertise, centralized power, and control that combine to construct massive infrastructure that redirects watershed flow toward concentrated urban areas for agriculture, housing, and industrial development. Discursively, this way of knowing water involves a sense of mastery over nature, in which industrial and technological experts, in the name of civilization, attempt to "tame" wild nature. Molle (2006) exemplifies the material-symbolic relation of the way of knowing water as a product in a discussion of "early utopian dreams of mastering nature. In 1871, in France, Thomé de Gamond, an engineer and long-time friend of Napoleon III, proposed the 'transformation of the wild stream into the civilized river'" (p. 5) to serve the centralized power of the city. As Oravec (1984) shows, the material production of water for cities and symbolic understanding of such production as mastery of nature for the utilitarian "best use" has long comprised the dominant discourse of conservation in the United States. In terms of water as a product, Ingram and Lejano (2009) make a subtle distinction that management techniques like Integrated Water Resources Management (IWRM) might be one way in which federal water projects have been translated to local needs through the inclusion of place-based knowledge in water management. However, US states' and federal government's water projects have always coincided with attacks on place-based and Indigenous sovereignty, rights, and ways of relating to other forms of life, including rivers (Estes, 2019). In short,

"water as product" is a way of understanding water that, above all, values economic growth and development, the dominant Western cultural rationalization of a perceived human mastery over wild elements of nature, and the persistence of a regime that tirelessly articulates Western constructs of technological expertise with the capacity and right to govern.

Water as a Commodity

Capitalism is responsible for a second way of knowing water: "water as a commodity" that can be privatized, valued through market-based exchange logic, and traded as is deemed profitable. The present-day size of the bottled water industry is a testament to the dominance of knowing water as a commodity, and the increased influence that companies like Nestle have on every scale of society, speak to the naturalization of water as a commodity. In the US West, that vast majority of municipal water is still public and/or allocated via systems of rights, as is the case in New Mexico. Yet, water as a commodity has still deeply affected places in New Mexico, if in a more indirect way when compared to direct extraction. The most immediate context in New Mexico that exemplifies the water as a commodity way of knowing is in the oil and gas industry. As of 2019, the state of New Mexico became, at least for a time, the seventh-largest producer of oil and natural gas in the world, the vast majority produced via hydraulic fracturing (fracking) which can contaminate 20,000,000 gallons of water in a single well. Understanding water as a commodity is the antithesis of place-based understandings of water (Arellano, 2014; Estes, 2019; Pecos, 2007; Matthews, 2018); commodities only become valuable in global capitalism when they can be mass produced, shipped all over the planet, and sold in as many markets as possible.

Water as a Source of Health

Ingram and Lejano (2009) explore the emergence of a third dominant way of knowing water that emerged, in particular, the US the environmental movement: "water as a source of health." Granted, the environmental movement did not originate only as a dominant discourse, but rather as a pluralist, leftist movement composed of activists, scientists, journalists, teachers, and students focusing on all manner of ecological issues such as animal rights, habitat restoration and protection, pollution from military action, industry, conventional agriculture, and massive scale use of insecticides, and the protection of waterways from development and pollution (Britton-Purdy, 2016). Because of its original articulation with the civil rights movement, a strong current in the environmental movement publicly demanded justice for the fact that poor communities and communities of color experience more destructive health, social, and economic consequences due to pollution and ecological degradation than wealthy and white communities (Britton-Purdy, 2016). Many of the groups among this plurality practiced place-based discourses that highlighted intimate human relations with multiple forms of life based in ethics of care (Plumwood, 1991) and the potential for radically sustainable and regenerative ways of living. Rachel Carson (1962) illuminated the deep ecological and social problems with widespread use of DDT and similar compounds. Jane Goodall (1990) worked (and still works) with local agrarian communities to connect wildlife corridors that reconnect primate communities who were isolated from one another as a result of hunting, industrial farming, and land disputes. However, the place-based movements for simultaneous ecological and social justice that Carson, Goodall, and many others promoted were at odds with other trends in the plurality known as the

environmental movement. For example, largely white "return to nature" or "back-to-the-land" movements took up the romantic notion of the self-sufficient farm, but failed to acknowledge and act upon the sociological and colonial contradictions of racism and classicism embedded in the history of agriculture in the US (Guthman, 2008).

With the 1970 formation of the EPA and passing of the 1972 Clean Water Act, the environmental movement, to a certain extent, consented to the hegemony of the "water as product" way of knowing water (Dwyer, 1995). While, in the past, the EPA has been responsible for a great deal of projects that protected waterways, its function as an arm of the state has limited its capacity to work toward paradigmatic change in dominant ways of understanding water in the US. By working through a system of expert-led environmental impact studies and an economic system based primarily on fines and penalties for violating regulations (and to a lesser extent, tax incentives for lessening ecological footprint), the EPA has largely privileged concentrated technical expertise over place-based knowledge to bolster those regulations (Mason, 2007). Moreover, the capacity of the EPA to grow to be a more coherent reflection of the plurality of social, cultural, and ecological disparities raised by the environmental movement in connection with the civil rights movement has been limited by the specific ideologies of given administrations and congresses (Landy, Roberts, & Thomas, 1990; Pulido, 2017; Yeager, 1987), to the extent that the EPA, at the time of the present study, lacks any semblance of its former self, having assumed a primary role of repealing environmental regulations in polluting industries as opposed to enforcing them (Popovich, Albeck-Ripka, & Pierre-Louis, 2020).

What the environmental movement has done, however, is bring to national and international attention many other ways of understanding human presence in the biosphere, including how human actions affect water and water-life systems. Ingram and Lejano (2009) argue that the biggest accomplishment of the environmental movement in terms of water was a way of knowing that saw water in terms of "health and ecology" (pp. 66-67), demonstrating in myriad contexts how human health depends on a much greater balance of life in the biosphere than humans alone, and that culturally, restorative human identity and action are possible even now. In its dominant forms, the environmental movement is difficult to distinguish from conservationism (Oravec, 1984), or from preservationism, an ideology that, while recognizing inherent value in more-than-human life, still conceives of humanity as fundamentally separate from the more-than-human world, imagining nature as a pristine place, untouched by the impurities of the human in all its forms. When, in material practice, the impossibility of such a binary reality becomes apparent, movements for preservationism are overshadowed by the dominant "best use" orientation of conservationism (Oravec, 1984).

Place-based Ways of Knowing Water

Ingram and Lejano (2009) explore a fourth way of knowing water - that which originates from Indigenous and long-term community survival strategies. While there are as many specific place-based ways of knowing water as there are places, they often share a sense of relationality with more-than-human life based in respect and in balance in returning as much to the land as is taken. Indigenous communities have fought to protect river systems and water more generally. In understanding Indigenous and place-based movements for water protection, it is important to make the material distinction between

these movements and the mainstream environmental movement in the US. Place-based movements are as much "of place" in terms of ecology as of culture - they originate in place, in "relations-in-place," as Milstein et al. (2011) put it, and not as a response to destructive industry. Rather, place-based Indigenous cultures predate and endure beyond the dialectics of historical materialism and the so-called human nature binary. This binary is particularly a cultural construction specific to Western capitalist materialism, and although Western capitalism is a dominant discourse, both material and symbolic to a certain extent in every place, the survival of place-based culture and ecological practice is at heart a refusal to consent entirely to ways of knowing based in human-nature binary and alienation (Escobar, 1999, 2001). Such a refusal is at the core of why place-based movements are movements for sovereignty, that sovereignty emanating from ancient sacred ties between land, water, and all living beings. Therefore, in my analysis, as I look at tensions between different ways of knowing water, I recognize how many ways of knowing are simultaneously present and exist in dialectical tension with one another, as extant scholarship empirically demonstrates that ecocultural ontologies and epistemologies often operate dialectically (Dickinson, 2014; Milstein, 2009; Milstein et al., 2011). The ultimate analysis cannot remain only in understanding how meaning moves in tension between multiple forms of knowing water in everyday talk that are always embedded with dominant power. It must also acknowledge, particularly when participants acknowledge and name it directly, a refusal to be identified only in terms of colonial intersubjectivity, of knowing water as a sacred being, and practicing survival strategies with water that honor its sacred connection to life, all despite capitalist market strategies that attempt to negate Indigenous sovereignty.

Materiality and Discourse Analysis: Metabolic Rift and The Assumption of Self-Containment

I close this chapter with a reminder that as farmers talk about water, they do not only do so symbolically, but are actively engaged in supporting and/or challenging the ways in which humans shape and reshape landscapes, waterways, and entire life-systems. Particularly industrialized culture, although Tsing (2015) argues it's most of humanity, has come to imagine itself not only as separate and superior to the generalized other "nature" (Milstein, 2009; Milstein & Dickinson, 2012), but just as important, as materially, symbolically, and practically self-contained. The human concept of self-containment changes the ecological notion of "encounter" from inherently implying "transformation" to implying "use" (Tsing, 2015). This notion, while masking the always already present and transformative materiality of encounter, has allowed humans to make almost incalculable violent transformations to life on the planet without the capacity to see (or in the case of settler colonialism, made through the capacity to mask) that such violence was simultaneously being committed to humankind (in the case of settler colonialism, direct violence on the bodies of Indigenous people and people of color, as well as poor people, and indirect violence on all life).

Offering a metatheoretical and methodological response, Tsing argues that we must choose to look through the lens of "precarity," for "precarity is a state of acknowledgment of our vulnerability to others" (p. 29). I aim to advance this commitment in the present study to practice a form of listening and noticing that calls "a rush of stories…It is in listening to that cacophony of troubled stories that we might encounter our best hopes for precarious survival" (p. 34). Tsing discusses several issues

with the research assumption of "scalability" – that is, that findings must be scalable, and that any form of research can be scaled up (micro-to-meso, meso-to-macro) without changing the research framework, and by "admitting only data that already fit the research frame" (p. 38). In the present study, and particularly in the final chapter, I explore the notion of scale in terms of how my participants construct the meaningfulness of water relations. The conceptualization of scale varied greatly within these interviews, and the fragmentation and continuity of characterizations of the potential for different kinds of water relations in the future at varying scales were mediated by whether participants' understanding of water included the centering of place-based, mutual survival. In the next section, I look at scale in terms of metabolic rift.

Water and Metabolic Rift

Metabolic rift, a concept that has evolved from classical Marxism to contemporary PE scholarship, is a three-tiered construct that begins with the notion that the metabolism of human societies has become alienated from the planet's ecological capacity to cyclically recreate life and life systems (McClintock, 2010). This alienation has occurred in such a way that humans create more sink (extraction) in ecosystems than source can replace – sometimes thousands of times more sink than source can replace. This uneven relationship is exacerbated by the fact that ecoculturally, much of human society has effectively made invisible such primary ecological metabolic rift in the everyday practice of social and economic activity.

Finally, McClintock (2010) argues that due to living out lives in social, political, and economic processes that warp some ecological realities and make others invisible, more and more people are both unaware of parts of their own ecological selves and have

distorted and/or alienated understandings of their own relational materiality to other life forms and systems. In other words, symbolic and material gaps exist between human understanding and action in more-than-human relations at an ecological structural/system level, at the level of cultural and societal relationships, and at the level of the self.

Chapter Summary

Examples of dominant discourses, as discussed in the present chapter, are rationalist, technically oriented, market-driven conceptualizations of water as a resource and input for development and profit, and to a lesser extent but still dominant, science-driven conceptualizations of water as an essential part of primarily human health. Proponents of the former of these dominant discourses conceptualize humans simultaneously as both masters over other forms of life and ecological processes, and also, as politically inert individual consumers of units of water per year. Proponents of dominant health-oriented discourses may engage in critiques of industrial or agricultural practices that pollute water, but similar to the producers of dominant water governance discourses, tend to conceptualize the health of people as hierarchically the most important kind of health.

People and communities who engage with place-based discourses about water conceptualize water as a shared source of life that, for the sake of all life, should not be commoditized or bought and sold. In addition, proponents of place-based understandings of water often conceptualize people as only one part of life systems emerging from water. Indeed, many Indigenous communities and non-Indigenous people who center place in their lives and actions see rivers as living beings with whom they share kinship, and to whom they give reverence and offer protection. As the analysis of participants' talk in the

present study demonstrates, situated talk is rarely a simple reproduction of dominant or alternative discursive themes and assumptions, but is rather composed of personal, relational, and emotional/embodied meanings that are hybrid and sometimes contradictory, and often exhibit tension between place-based and dominant discourses.

Dialectics help to explain this tension at the individual and relational level of communication, as well as, in some cases, the construction of contradictions in dominant discourses about water. However, it is also important to recognize that dialectics are not all encompassing and should not essentialize the identities and sense-making strategies of all people simply because they are part of a discourse community or community of practice. Rather, in the case of Indigenous-led, place-based movements for water protection, the historical and present-day rejection of colonial dialectics is evidenced by both the material and symbolic survival of mutualist, communal waterways and the place-based ecocultural identities that surround and emerge from their flows. In the following chapter, I explore the present study's methodology and methods of data collection and analysis.

Chapter 3: Methodology

The present study looks at farmers' talk about how they understand relations with water through the analytical lens of cultural discourse analysis (CuDA) (Carbaugh, 2005, 2007; Carbaugh, Gibson, & Milburn, 1997). CuDA is an interpretative and critical methodological and conceptual framework that highlights participants' specific cultural ways of depicting themselves, their relationships, actions, and emotions, as well as the meaningfulness of place in the transmission and talk-based reconstitution of cultural practice. Through CuDA, I see communication as a historically constituted cultural practice, in which people engage in various forms of speech and action that both presume and create complex meaning (Carbaugh, 2007; Milstein & Cerulli, 2018).

In this chapter, I first look at extant scholarship in order to theorize CuDA as a methodology and method of analysis, grounding the approach in its origins in Ethnography of Communication (EOC) and Speech Codes Theory (SPT). I then demonstrate how CuDA theorists and researchers build upon EOC and SCT definitions of communication and culture, but then turn their focus to the study of cultural discourses as opposed to speech communities or speech codes. I then describe how I use the five hubs and radiants of meaning in CuDA in the present study to construct my method of analysis and answer my two research questions:

RQ1: What core ecocultural meanings compose RGCF farmers' talk about water in their daily lives and farming practices?

RQ2: How does RGFC farmers' talk relate to dominant and place-based discourses about water?

CuDA Scholars' Approaches to Culture, Communication, & Discourse

In order to understand how CuDA is put to use for the present study, it is first necessary to explain how scholars who use CuDA define culture, communication, and discourse. Carbaugh, Gibson, and Milburn (1997) and Carbaugh (2005, 2007) developed CuDA from two foundational interpretivist communication theories and methodologies: ethnography of communication (EOC) (Hymes, 1971), and speech codes theory (SCT) (Philipsen, Coutu, & Covarrubias, 2005). EOC and SCT conceptualize culture as a collective system of shared meaning and practices that are historically transmitted and (re)constituted, principally through various forms of verbal and nonverbal communication and representation. Communication, through the lenses of both EOC and SCT, is thus action-oriented. EOC and SCT scholars primarily see communication as a set of *cultural practices* through which meaning is (re)created, shared, and changed over time. EOC and SCT assume that meaning constructed through communication practices is primarily understood *within* communities who practice particular speech codes, a speech code being a "system of socially constructed symbols and meanings, premises and rules, pertaining to communicative conduct" (Philipsen, 1997, p. 126).

Carbaugh, Gibson, and Milburn (1997) define communication as "a pattern of situated, message-endowed action that is used in a scene(s)" (p. 6). While both of these theories (and CuDA) see culture as historically transmitted, they also argue that meaning is also reshaped and transformed as communication is practiced in the world. EOC and SCT focus fixedly on the *speech community* or the cultural group that practices a specific speech code. The concept of a speech community implies that all members practice and recognize the speech code (often without naming rules or premises directly), and that in most cases, membership requires either birth in a community, or either formal or informal

ritual induction (e.g., marriage; being hired in a new organization; baptism; revelation of shared knowledge of and passion for mushroom foraging through an online network and invitation to a gathering). Codes often have rules, premises, and practices for identity, relationships, action, emotional expression, and, potentially, place, which CuDA names as explicit hubs and implied radiants of meaning in cultural discourses. Because of the primacy of membership, especially "native" membership, in SCT and EOC (Hymes, 1957; Philipsen, Coutu, & Covarrubias, 2005), scholars have produced a plethora of deeply descriptive analyses that essentially equate the practice of a speech code with membership in a speech community, and practice of different codes as implied non-membership, supporting a meta-understanding of culture as practices and lifeways belonging to a specific people, practiced primarily or only by that people, and meaningful only to that people in that people's specific way.

While this way of viewing language, culture, and language-in-context highlights that which is shared, EOC and SCT undertheorize those examples and experiences of culture and communication that are ontologically and epistemologically multiple, unsettled, in tension, dialectical, or disparate *within* apparent speech communities. CuDA addresses the fact that while people may learn to communicate in particular speech communities, when practiced over time and in multiple contexts, languages in practice, or *discourses*, take on lives of their own in society and are often re-appropriated at larger scales than their origins and/or simultaneously constructed across multiple speech communities. Moreover, discourses are often "in conversation" with one another, commingling and transforming one another (Marafiote & Plec, 2006), while others are directly and strategically oppositional (Estes, 2019). CuDA decenters the speech

community as central focus and, rather, centers cultural discourses and the interaction of multiple cultural discourses in society. This is not to say that speech communities do not practice cultural discourses, but rather that people and communities of practice, like the farmers who are part of a learning farm organization in the present study, engage in multiple cultural discourses as they talk about their selves, relationships, emotions, and understanding of place as they relate to practices with water.

Cultural discourses, according to Carbaugh (2005), are clusters of symbols, codes (sets of rules and guidelines for communication and relational phenomena in a specific context of community), propositions, and premises for identity, relationships, action, affect, and place. These five discursive "hubs" of meaning as Carbaugh (2005, 2007) names them—being, relating, acting, feeling, and dwelling—are the major organizing concepts around which the vast majority of people and communities engage in situated talk. In practice, CuDA analysts often find that in a given cultural discourse, one or more of these hubs are primary and explicit in participants' speech (or whatever text is being analyzed), and others are implied through the discourse. In other words, someone could speak directly about what it means to engage in traditional farming in New Mexico (explicit talk regarding hubs of "acting" and "dwelling"), but in so doing imply a sense-of-self that is tied to place and action (being).

Cultural discourses can be topic-oriented and/or function-oriented. In other words, when people talk about, for example, the way they prefer to get food (i.e., gardening/ farming, community shared agriculture, farmers' markets, a particular grocery store, ordering groceries online and having them delivered to their door with no interaction apart from the online transaction, etc.), they can both relay ideas *about* food,

relationships, and, place, for example, *and* also engage directly in constructing those realities. In other words, cultural discourses are both referential in terms of Saussarean linguistics (sign = signifier + signified) and constitutive (communication is action that creates and recreates the meaningfulness of the world). To this point, Scollo argues that "unlike a cultural code, which concerns a communication practice and its meanings, a cultural discourse organizes multiple, related practices in and across scenes, rules or norms, and their meanings" (2011, p.14).

I am studying an organization that, because of its structure, funding, and membership, engages in all of these discourses simultaneously – many are justice-oriented in some way or another, and they represent a small part of a larger movement for environmental justice, but often contradict one another. While Laclau and Mouffe (1985) argue that theory can demonstrate how, discursively, disparate groups can rearticulate their relations to and consent to a common leadership as a challenge to bourgeois colonial capitalist hegemony, a similar analysis can help to understand the articulations of multiple cultural discourses about ecological and cultural justice (ecocultural justice) within an organization and how that organization interacts with various communities. In Chapter 4, I will relate specific cultural discourses, centering them around CuDA's five hubs of meaning to larger discourses of both science and technology, and place-based discourses of commons and human rights.

Rio Grande Community Farm & Acequia Culture

The Rio Grande Community Farm is a collaborative organization that focuses on practicing sustainable agriculture, strengthening community ties in Albuquerque, providing access to environmental education to the community, and enhancing the

wildlife habit surrounding the farm. The farm is located in the Los Poblanos Open Space, which sits at the same site as the original Los Poblanos settlement. Anasazi Indigenous people had been farming the land for nearly 1,000 years before Spanish colonization, making the area one of, if not the, longest continuously farmed parcels of land in New Mexico, as well as the US Southwest (Rio Grande Community Farm, 2020). Such long-term farming in the high desert Middle Rio Grande climate was and still is made possible by the use of *acequias*, or gravity fed, dug out irrigation ditches from their source, the Rio Grande.

In the high desert riparian Middle Rio Grande Valley of the US Southwest, *Nuevo Mexicano*[5] ecocultural identity is rooted in ancient, collaborative, and trust-based relationships with water and the more-than-human life that water nurtures.[6]

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[5] *Nuevo Mexicano* is a Spanish language term that refers to an amalgam of place-based ethnicities. This term includes several Indigenous First Nations, Pueblo Indians (see footnote 3), the descendants of Spanish colonizers, *mestizo* (mixed-race, Indigenous), *genízaro* (descendants of Spanish colonizers and Indigenous slaves), and Chicano (political identity of people with Mexican heritage living in or born in the United States). New Mexico is the present-day US Southwest in which this study takes place, but I use the Spanish, *Nuevo Mexicano*, to reflect both local usage and the fact that, while these ethnicities originate in multiple languages, Spanish is still widely spoken in New Mexico. Finally, while some people may include Anglo people who have lived in New Mexico for multiple generations in the ethnic amalgam of *Nuevo Mexicano*, Anglo inclusion is almost always fraught due to unresolved inequalities stemming from Anglo colonization, Anglo violence against Indigenous people, and ecocultural differences (such as the building of dams) addressed in the present study.

[6] The Rio Grande is a nearly 2,000-mile river in the US Southwest and Mexico. The Rio Grande's source is in the San Juan Mountains in the Southern part of the US state of Colorado. The river flows through the length of New Mexico, forms part of the US-Mexico border, and flows out into the Gulf of Mexico. in The Middle Rio Grande Valley (and basin) is a 100 mile stretch of the Rio Grande starting in northern New Mexico and flowing south. This section of the Rio Grande is home to *Bosque* ecosystem and the City of Albuquerque. As the primary water source for all life in the Valley, the Rio Grande made it possible for Pueblo Indians to settle in the high desert, some 10,000 years ago, and for Spanish colonizers to settle in the Valley starting in the 16th century.

Fundamental to Nuevo Mexicano ecocultural identity is the *acequia* system: a centuries-old, miles-long network of gravity-fed irrigation ditches that have allowed for relatively stable and sustainable agriculture in a river valley that, prior to damming, flooded regularly. Acequias are the result of ancient Indigenous Pueblo Indian[7] knowledge and North African knowledge carried to the US Southwest by Spanish colonizers beginning in the early 16th century. Centuries after Spanish colonization in the US Southwest, Anglo and other European colonizers imposed forced cultural assimilation and industrialized (sub)urban development that violently disrupted Indigenous ecoculture. In New Mexico, this included the disruption of many acequias and the entire lifecycle of the riparian ecosystem known as the Bosque. Yet, the Rio Grande and surviving acequias are powerful more-than-human actors that draw life into their flows.

Acequias' maintenance and care and the connections of all life in the Valley, human and more-than-human, are essential to Nuevo Mexicano ecocultural identity. While people who identify as Nuevo Mexicano make up a large portion of the participants of the present study, RGCF is a community organization composed of many people of different ethnicities and place-based backgrounds. Three important points that come up repeatedly throughout the analysis in the present dissertation are (1) the difference in discourses based on how long participants have spent in New Mexico (both because of cultural connections to land and water and the arid climate), (2) how intensively a person has been surrounded by and participated in specific ecocultural

[7] Present-day New Mexico is still home to 19 Indigenous First Nations known as Pueblos. Pueblo Indians are assumed to be among the first human residents of the Valley, some of whom are estimated to have been living in the valley for over 10,000 years.

practices that are part of Nuevo Mexicano identity, and (3) how these discourses become hybridized by the influence of participants' many different experiences with water.

Acequias, historically and presently, compose relationships based in trust, community collaboration, and nurturing more-than-human and human others (Rivera, 1998). These waterways were and still are the lifeblood of community connection and Indigenous ecocultural identity for many in New Mexico (Arellano, 2014). In recent history, the flow of acequias, both materially and symbolically, has been disrupted through water diversion for housing and business development, and more generally by the forces of suburbanization and gentrification. Suburbanization, in particular, is responsible for increased greenhouse gas emission, contributing to global climate disruption. In addition, suburbanization on one hand, and industrial development on the other, are responsible for spatially exacerbating social, economic, and ecological inequalities along lines of class and race (Brisman, 2003).

Despite these destructive ecocultural forces, *acequias,* and their source, the Rio Grande, persist and, during the past two decades, have experienced and influenced an increase of community engagement, revitalization of traditional farming, sustainability education, and ecological restoration projects (Hoffmann, 2018). The Rio Grande and *acequias* themselves are powerful more-than-human actors that draw many forms of life and meaning into and around their flows. The ancient and perpetual practice of *acequias*' maintenance and care, as well as the bountiful life they support throughout the riparian valley, are primary sources of Nuevo Mexicano ecocultural identity (Arellano, 2014; Fernald, Baker, & Guldan, 2007; Fernald, et al., 2012; Hoffmann, 2020; Rivera, 1998). Restoration efforts, as both discourse and practice wrapped into processes of

placemaking, must consider how cultural and ecological disruption are fundamentally and always imbricated (Cox, 2007).

Milstein, Anguiano, Sandoval, Chen and Dickinson (2011) reframe the concept of a sense-of-self in place to focus on ecocultures and a sense of "relations-in-place." Relations-in-place highlights the relationality of the more-than-human and recognizes that more-than-human life has agency in the construction of human notions of place. Milstein et al. (2011) studied Nuevo Mexicano people's deep connection to land, which includes how they see connection to each other—a connection that was made possible by the land through food systems and the life-giving power of acequias. While part of a sense of relations-in-place for Nuevo Mexicano people is a feeling of loss as forces of white/Anglo colonization and modernization disrupted and destroyed many acequias, memory and multiple generations of connection to land are an irreplaceable strength and remain integral to local senses of "sustainability."

Through 16th and 17th century Spanish land grants still honored today, many Nuevo Mexicano who are descendants of Spanish colonial families and Indigenous peoples, and are likely *mestizo* or *genízaro*, still practice acequia agriculture, despite white colonizers' direct attempts to destroy these ecocultural relationships and retell history in their own image. The melting-pot myth is a problematic conception of settler colonialism; its imagined utopia is exclusive and requires the erasure of specific histories of difference, particularly in places like the New Mexico (Wilson, 1997). In New Mexico, more specifically, is the myth of "tricultural harmony": a utopic vision of New Mexico in which Indigenous, Spanish, and Anglo peoples celebrate a "common" heritage and all benefit equally from the abundance created by such harmony. Arellano (2014), a

Nuevo Mexicano and *mestizo* scholar, argues that this myth is perpetuated by people who rent or purchase land in the New Mexico for its beauty and history, but ignore traditional farming and life (and ecological responsibilities to protect water) that surround *acequias*. The tricultural myth often takes on a form of ecocultural identity in which white settlers express desire to experience and even write themselves into a romanticized view of history and ancient connection to land and water. This myth is important in the present study, because the participants identify themselves and their work in ways that create ruptures in the myth, such as water protection and the decolonization of food systems.

Several participants in the present study see their work as part of a larger movement to resist developmental forces such as the city of Albuquerque annexing and rezoning agricultural land for industrial or suburban development (Hoffmann, 2018, 2020). Such development includes redirecting rain and floodwater to sewer systems and disrupting aquifer recharge through the aggregate evaporative effects of suburban concrete, including, in Albuquerque, the concrete lining of once soil-bottomed arroyos (Bhaduri et al., 2000; Mitsch & Gosselink, 1993; Poiani & Bedford, 1995). Over the past century, through several dams built in the name of flood control and for diversion to large scale irrigation, and largely white, wealthy urban/suburban development, the US federal government has reduced the flow of the Rio Grande through Albuquerque to 1/6 of its pre-Anglo colonization volume. This has deeply disrupted the Bosque ecosystem, endangering several species, including the silvery minnow, and a keystone riparian species – cottonwood trees (Yerba Mansa Project, n.d.). Several of the participants in the present study (especially those with long-term ties to New Mexico) are active in both

organizing community members to restore and protect this riparian life system, including at their own farms and at RGCF.

Furthermore, suburban ecoculture, even in the desert, is often based in lawn culture that encourages overuse of water and pollution of groundwater with inorganic fertilizers and herbicides. Suburban ecoculture is not only harmful to human and more-than-human life in the suburbs (Robbins, 2012) but affects soil composition and water everywhere in the watershed of a given suburb due to runoff containing these harmful compounds (Kaufman, 2000; Law, Band, & Grove, 2004). Ecocultural identities that belong with the flow of water, alongside the seasons' cycle of planting, nurturing, harvesting, and returning to the soil, stress and erode when cut off from waterways. Part of RGCF's work is to directly counter the destruction of wildlife habit along the Bosque, which also makes the farm's site an important place to study the influence of place-based ecocultural practices on the more-than-human relationships with water.

As a researcher, I have to both acknowledge and act upon my own identity, both avowed and ascribed, in order to account for how I may have influenced the research with both my presence and actions. In terms of ascribed identity, I am white, male-bodied, cis-gendered, speak English as my native language, and was raised in a working-class home in a diverse area on the south side of Chicago. In many ways, I directly benefit from the structures of white supremacy in the US, particularly because my body is normalized in dominant cultural spaces, including, but not limited to schools, workplaces, and public outdoors. I am less likely to face violence from authority based on how people holding authority perceive my body within public spaces, and therefore, am much less likely to be disenfranchised both symbolically and materially than women, people of

color, gender queer or gender non-conforming folks, or people whose language is perceived to be nondominant in most contexts in the US. The history of colonization, and white people's participation in violence against, and genocide of, Indigenous people, Black people, and other people of color in New Mexico undergirds part of how I will be perceived in any given community research setting in New Mexico.

For this reason, among many others, I felt it was fundamentally necessary to both talk openly about identity with participants, as well as to find ways to give back to the people and communities from which my participants come. I have spent a great deal of time during the last six years volunteering for farmers in the Middle Rio Grande, several of whom are participants in the present study. Through farming with participants, I have provided my labor as a way to show gratitude to my participants for both sharing with me their understanding of ecocultural practices with water and food, and for participating in the present study. I have worked to build relationships with the participants in the present study in which we have openly discussed the history of colonization, water, and agriculture, and what it means to work to take control of the food system at the community level. In this way, I have made meaningful material and symbolic efforts to support the social and ecological work farmers are doing, and have, in fact, contributed much to that work myself. Openly acknowledging how I have both benefited from dominant and often oppressive structures with participants has helped to create trust, and my continued active participation within the ecocultural practices and relationships that I study has strengthened that trust. There are, of course, limitations to shared experiences, and I do not and would not pretend to understand what it is like to survive as a person of color within white dominated spaces. There are questions that I would never know to ask,

and knowledge that is not mine to take. However, the practices that I am studying are, in part, about attempting to dismantle the colonization of water and food ecologies, a multispecies decolonization. Making this explicit to participants, and directly supporting their farming practices, I have built and strengthened both trust and responsibility with my participants.

Participants

I conducted interviews with 15 participants, all of whom I have assigned pseudonyms for the purpose of protecting confidentiality. (See description of interview procedures, below.) All 15 have at some point in their tenure as gardeners and farmers participated in substantive gardening and farming activities at RGCF.[8] By substantive, I mean that everyone interviewed had gardened there for at least one full season, and in the vast majority of cases, participants currently held or had previously held leadership positions with RGCF. Participant leadership roles include farm manager, farm coordinator, compost committee members, coordinators and directors of community and service programs that RGCF hosts (explained below), members of the board of directors. It is important to note that all members of the board I interviewed were also current or recent community gardeners, garden educators, or volunteer farmers who consulted for RGCF, but not all board members, in the past, actually participated in garden functions or were even farmers in any capacity. The board went through a close to 100% turnover

[8] It should be noted that while the original goal for quantity of participants in this study was 20-25, due to the current lockdown and quarantine for Covid-19, I was unable to reach a number of participants for scheduled interviews. However, the data presented in this dissertation are rich, and offer a nuanced representation of farmers' talk.

during the past three-to-four years, a transition that every member I interviewed viewed as a positive and necessary change for the sake of the growth of the organization.

The participants ranged in age from early 20s to late 70s. In terms of ethnicity, participants come from a wide variety of backgrounds (White/Anglo, Nuevo Mexicano, Asian American, Pueblo Indigenous). Although, in a few cases, participants directly reference ethnicity as a part of their own understanding of water, from my interpretation, the biggest differences in understanding of water relations in general and those specific to flood irrigation agriculture based on participants' communication are whether or not someone grew up in New Mexico, or spent a significant portion of their life engaged in traditional agricultural practices with water in New Mexico. While gender was is not necessarily a primary point of analysis in this study, I present gender as it was self-reported by participants during interviews. Participants' self-reported gender as follows: four participants identified as men, one identified as cis-gendered male, six identified as women, two identified as cis-gendered female, and one participant identified as queer and gender nonconforming.[9]

Participants all grew up in the United States, although several have spent significant portions of their lives in other parts of the world. Of the 15 participants, five were born in New Mexico and spent the majority of their lives in New Mexico, seven

[9] These are the terms that participants used to describe their own genders. Although gender is certainly an important theme in cultural discourses, it did not emerge in participants' talk about water. This is not to say that the present studies' participants do not or would not associate gender and water practices as meaningful together, but that gender did not emerge as a primary theme in participants' talk about water. It is worth noting that the intersection of socio-economic status and ethnicity (i.e., place-based cultural identity) did emerge as co-themes in participants' talk about water, and these are discussed in the analysis and conclusion chapters.

were born in other regions of the United States and have spent the majority of their lives in New Mexico, and the remaining three were born in other parts of the country and only recently moved to New Mexico (within the last two years). Participants' early experiences with water varied a great deal from growing up in the high desert, monsoon-season-dependent, and periodically drought-affected climate of central and southern New Mexico; Midwestern climates with year-round rain, snow, and temperature extremes; Northwesters climates with moderate to heavy rainfall and moderate temperature range; and Northeastern climates with abundant rain and snow and significant seasonal fluctuation in temperatures. Participants discussed very different experiences and understandings of water and water relations based on where they grew up, and many talked about meaningful transformations of those understandings upon moving to New Mexico, and particularly upon learning more about flood irrigation in the Rio Grande Valley.

One major function of the RGCF is to act as a host for local community organizations and nonprofits that need land for gardening projects or operations. Several partners have garden plots that pay a membership fee to RGCF through grant funds or as part of their normal annual budget. Among the participants interviewed are several from partner organizations: a Master Gardener's program funded by the extension office at a major university in the US Southwest, a local elementary school gardening education program, an organization that helps refugees resettled in the area meet other community members, work on language skills, gain job training and job search preparation, and acclimate to a new culture through relationships in a familiar space. Most of the refugees come from farming backgrounds, so, according to the coordinator of the refugee farming

program, the garden acts as a grounding, familiar space where folks experiencing loss of home, land, citizenship, and sovereignty can feel a sense of the familiar.[10]

In addition, several of the participants were, within the last three years, gardeners or part of the leadership at RGCF, but have since either joined the board of directors or only volunteer occasionally. Of those no longer with the organization, the reasons for their departure vary, but most are now either running their own farms or have found career work in teaching or practicing agriculture, environmental and sustainability sciences and humanities, or advocating for farmers' rights at the national level.

Participants were chosen through word of mouth (snowball sampling) and participation in the community farm. As a researcher practicing participant observation, I was a member and gardener at the community farm and worked and recruited members of the organization face-to-face at the garden and asked those interviewees who they would recommend for me to interview. I recruited a wide range of participants in terms of their experience gardening or farming, their relationship with the organization, various levels and types of leadership, and differences in terms of the hydro-social cycles of the places where participants were raised. One limitation I faced was the window of time I had available to recruit. In many cases, the only way to find people to interview was to go to the farm but it is likely that in the windows of time I had available, I happened to miss some farmers who could have been participants in the study. However, all of the participants I interviewed are or at one point were highly active members of the

[10] While future research might engage directly with the refugees with whom this partner organization works to understand how they feel about the program and its relationship to (sustainable) water relations, such research beyond the scope of the present study, due to time and IRB constraints. This limitation is further discussed in the final chapter.

organization and are working to see it grow and provide more locally grown fruits and vegetables to people and communities in Albuquerque. In the following section, I discuss the interview data-collection method and method of data analysis.

Interviews

The interviews for this study ranged from 45 minutes to two hours, with the majority of interviews being around an hour and a half. I interviewed each interviewee once, and 12 of the 15 interviews occurred either at RGCF before or after interviewees and I were working on the farm, or at one of the interviewee's home farms. (While RGCF is the focus of the present study, I visited a total of seven farms/farmers' homes [all small scale organic farms] during the course of the study. I have worked on, volunteered on, or visited dozens of small scale organic farms in and around Albuquerque both as a way of connecting to place and as background research for this study). Interviews were digitally recorded and stored on a password-protected computer; all files were stored on an external hard drive locked in a filing cabinet in the Communication and Journalism building at the University of New Mexico. I personally transcribed the interviews using verbatim transcription, transcribing all verbal utterances, including vocal fillers. In order to maintain confidentiality, the original interview files were deleted permanently, and the interview transcripts were kept on an unlabeled external hard drive in a locked filing cabinet in the Communication and Journalism building at the University of New Mexico. The interview guide for the present study is included as an appendix at the end of the study.

In order to conduct this analysis, I first took a grounded coding approach (Lindlof & Taylor, 2017), allowing themes to emerge from initial patterns in the data, and

developed an inductive set of codes loosely based on Carbaugh's (2007) five hubs of meaning, taking the utterance (Bakhtin, 1970) as my basic unit of analysis. An utterance is an occurrence of continuous speech, generally bordered by silence. In the case of the current study, the utterances I analyze come from ethnographic-style interviews in which participants were asked to discuss their childhood, family, and community experiences with water (or other experiences that might stand out in their memories); how they use water in their work and in their homes; and how they think about and understand the relationship between water and the place where they live. I asked questions about multiple places, including home, the city, the region, and also asked participants to identify places that were particularly meaningful to them, and asked about water there.

Data Analysis and Coding

In the initial coding process, I coded utterances through CuDA's framework of the five hubs of meaning (being, relating, acting, feeling, dwelling). At this stage, I also began coding for CuDA "radiants," or secondary nodes of meaning that, while still fundamental to understanding participants' talk, may have not been the principal focus (i.e., identity hub, dwelling radiant).

In order to code for being, I looked for utterances that directly named or described social identities including race, ethnicity, socio-economic status, and gender, and I looked for any moments in which participants discussed any of these identities as they relate to water (e.g., "I guess yeah, just seeing the rain, when it came as being magical and life-giving…yeah I guess that's how I saw it as a little desert poverty kid"). I also coded utterances for avowed identities, and any specific connections to water, water practices, or farming practices (e.g., "I have been a gardener my whole life, it's part of who I am";

"I like to think of myself as the compost person for this farm"; "the city would drill wells for all of these neighborhoods if they could, I continue to flood this farm because doing this working with the water and the land is my cultural identity"; "I seek out water when I'm hiking. It's part of who I am having grown up on the coast. It's like, in my memory, my entire childhood happened in or near the ocean. I miss that now").

In order to code for relating, I looked for utterances that directly named specific human and/or more-than-human relationships (e.g., "I have really just been spending a lot of time with farmers for the last several years"; "it wasn't until I really started hanging out with real farmers who flood irrigate on a large scale that I realized how unbelievably important flooding is for all of the life along the river"; "when I come up here I love to just sit in my car sometimes and watch all the animal life that comes by, it's like David Attenborough is just in my head narrating the whole scene"; "there's no real delineation between the farm and the Bosque, it's all related"). Coding for feeling involved coding for language that identified specific emotions as well as sensations.

Coding for actions was also very direct: I looked for action verbs and developed codes based on specific behaviors, measuring techniques for water levels, farming techniques, acts of structural water governance, and actions of protest and cultural education (e.g., "turning off the taps"; "taking long showers"; "making sure we never used too much well water in dry years"; "flooding only every five weeks during a drought"; "shutting off the acequias in July"; "using well water whenever they wanted"; "trying to take back the communal water and food systems from colonizers").

Coding for dwelling, I looked for people naming places as having influenced their understanding of human relationships with water directly (e.g., "every time it rained it

was just magical, but just knowing that without that, none of would be there, and just how there was never enough to go around, I think really affected people, people were just always worried about the next time the rain would come"; "Now when I fly into Albuquerque and I see the green belt, just knowing that that's because of how we're flooding, and keeping that water here, and the cottonwoods keeping holding that water there"; "I just hope that if we ever have a really, really dry year, that because of how we flood here that there will be enough water that's just residual that the plants will all still make it"; "It's where we're from, as far back as I can remember, people in New Mexico just constantly have water on the mind").

When coding utterances, I was very careful not to disrupt the meaning of the original utterance. In order to represent the continuity of the original utterance, whenever possible—and this was in the vast majority of cases—I did not edit anything from the utterances, including vocal fillers. While the phonetic, phonemic, morphological, syntactic, and sociolinguistic features of utterances are not the focus of this analysis, I simply wanted to represent the speakers' language as clearly as possible. I coded for primary hubs and secondary radiants of meaning (e.g., an utterance might align explicitly with the hubs of being and dwelling, but also imply a sense of relationality, or relating). I also made a point to note patterns of *a lack* of a particular hub in utterances.

I also used secondary, theoretical codes. That is, following CuDA scholars' work on meta-discourse, I noted when (1) participants directly named a cultural proposition or premise for a cultural understanding of and/or practice with water; (2) participants made an explicit critique of a practice with, or way of talking about, water; and (3) participants'

comments related explicitly or implicitly to a larger cultural discourse or practice with water or the more-than-human world (e.g., conservationism).

Finally, I conducted a comparative analysis within individual participants' discourse and across different participants' discourses to look for continuity and contradiction in terms of the ways-of-knowing-water framework. From these comparisons and contradictions, I interpreted patterns of ecocultural premises in participants' talk, and demonstrated the presence of ecocultural dialectics that explained varying degrees of fragmentation and continuity in how participants understand their own personal relationships with water and those related to their farming practices. Finally, I compared these dialectics to extant dominant and place-based discourses in order to explain how participants' meanings were both influenced by and reproduced situated examples of these discourses.

In the following chapter, I analyze participants' interview-generated talk, and interpret participants' meaning through the framework of CuDA and ecocultural dialectics.

Chapter 4: Analysis

In this chapter, I first present a summary of findings including two tables that act as visual aids, as well as an outline of the major sections and themes. The analysis in Chapter 4 is organized in two major sections, each section explaining a dialectic that exemplifies the primary ecocultural tension between fragmentation and continuity. The two dialectics—objectification vs. relationality and idealism vs. embodiment—are my interpretation of the cultural discourses that guide participants' talk and understanding about water. Using the framework of CuDA, I show how these two dialectics organize participants' meanings about self, relations, actions, feelings, and place, all in the context of water practices in their homes and at RGCF. In order to highlight the topics participants deemed as the most important, I organized the subsections of the dialectics into participant-produced themes that, in turn, exemplify each pole of the dialectics (See Table 1 for outline of themes and subthemes). Table 1 (p. 70) shows a summary of tension between objectification and relationality for each of the five hubs of meaning in the CuDA framework. Table 2 (p. 70) works in much the same way, but for the tension between idealism and embodiment. These two tables also show how the two dialectics are related to the primary tension between fragmentation and continuity, with objectification and idealism exhibiting fragmentation between the five hubs of meaning, and relationality and embodiment exhibiting continuity between the hubs. Finally, I summarize my findings through a brief explanation of the dialectics.

Summary of Findings

Table 1: Hubs and Radiants of Meaning in the Objectification—Relationality Dialectic

	Fragmentation----------Continuity	
	Objectification----------Relationality	
CuDA Hubs/Radiants*		
Identity/Being	(Careful) Individual water users	One part of relational life systems/ Water protector
Relating	User-used (quantity) relationship	Multispecies Shared Vitality
Acting	Conservation = control of quantity & efficiency (input and output)	Protecting shared waterways, soil life, and enhancing wildlife refuges
Feeling	Guilt vs. convenience	Respect, gratitude
Dwelling (Place)	Place is the background for human activity	Historical and present site composed of ecocultural relations
***Hubs** signify explicit talk and meaning, while **radiants** signify implicit or contextual meaning. Whether meaning about identity, for example, is explicit or implicit (or both) in participants' talk depends on the specific participant and the specific utterance.		

Table 2: Hubs and Radiants of Meaning in the Idealism—Embodiment Dialectic

	Fragmentation----------Continuity	
	Idealism----------Embodiment	
CuDA Hubs/Radiants*		
Identity/Being	Individual water users, "saviors"	Place-based, historically constituted water protectors
Relating	Implied "mastery over nature"	Ecocultural justice
Acting	"Drastic" actions (e.g., population control)/reliance on organic certification	Agency and advocacy for survival is shared in and beyond the farm
Feeling	Anxiety-Loss/Crisis	Anxiety-Loss/Catharsis
Dwelling (Place)	Abstract, predetermined capacity and limit	"Relations-in-place" and site of struggle for multispecies survival
***Hubs** signify explicit talk and meaning, while **radiants** signify implicit or contextual meaning. Whether identity, for example, is explicit or implicit in a participant's talk depends on the specific participant and the specific utterance.		

The present study's findings from the analysis that follows show that, in terms of core cultural meaning, the differences in farmers' understanding of water relations are

organized by two dialectics. Discourses are marked by dialectical tension between objectification and relationality, as well as tension between idealism and embodiment. Together, the two dialectics reveal a fundamental tension between fragmentation vs. continuity concerning meaning about identity, relationships, action, emotion, and place regarding practices with water both in the home and on the farm. That is, on one hand, participant meanings grounded in objectification and/or idealism revealed fundamental disconnections between conceptualizations of identity, relations (both human and more-than-human), actions and agency, feeling and emotions, and sense of place. On the other hand, participant meanings grounded in relationality and embodiment revealed continuity and connection between historical and present-day sense of place, and participants' conceptualizations of identity, relations between humans and more-than-humans, and the relationship between emotion and practices with water.

On the fragmentation side of the spectrum, utterances were marked by objectification and idealism. In my interpretation, these utterances reproduced dominant technical conceptualizations of people as individual, average water users, and water as a resource whose primary function is to ensure human needs are met. Talk that exhibited objectification and idealism depicted place as the background for (foregrounded) human activity. In terms of action, the utterances I interpreted as showing objectification depicted conservation action through the dominant discourse of the smallest but "best" use. However, in idealist conceptualizations, participants described human-water relations as almost unequivocally destructive, and proposed drastic actions such as population control/reduction or technologies that would entirely remove food production from soil and outdoor watersheds. These descriptions of drastic actions also reproduced

dominant conceptualizations of humanity as becoming "saviors," taking the necessary action to "save the world." Emotionally, some participants on the objectification pole expressed contradictions in which they felt guilty for using too much water, but not truly compelled to change because of the convenience of seemingly unlimited water at home. Idealist emotions involved similar guilt and anxiety about pollution in water coming to the farm, and participants relied on institutionalized norms for organic certification as a way of responding to pollution (but not, necessarily, as a way of relieving their anxiety or guilt).

On the continuity side of the spectrum, participants expressed meaning marked by relationality and embodiment. These participants generally described senses-of-self that were grounded in the life systems of the places where they lived and worked, and particularly with waterways. Often participants did not distinguish their identity as something separate from water or other living beings who are parts of waterways, but rather focused on how they were only one part of water-based relational life systems. They did orient toward the specific human identity of water protector, which is grounded in historical and present-day action and relations of indigenous resistance against polluting and colonizing industry and colonial government actions. Finally, in terms of emotion, participants who fell on the continuity side of the spectrum, exhibiting relationality and embodiment in their talk, described feeling both a sense of loss caused by the dispossession of ancestral acequia waterways either they or their neighbors had experienced, but also a sense of catharsis when doing on-the-farm teaching about water protection, and participating in political action to protect waterways. Now, I turn to my participants' own words to demonstrate these findings.

Figure 1: Outline of Chapter 4 Analysis

<u>Dialectic 1: Objectification—Relationality</u>

- ***Objectification & Fragmentation***
  - **Participant Themes**
    - Conservation Through Action of Measurement and Construction of Smallest Quantity
    - Individual Conservation Action, Guilt, and Convenience
- ***Relationality & Continuity***
  - **Participant Themes**
    - Emphasizing Place and Community in Conservation Actions
    - Decentering Human Agency: Vastness and Abundance, Vulnerability and Drought.
    - *Agua es Vida*: Water is Life.
- ***Summary of Objectification-Relationality Dialectic***
  - **RQ1 (Core Ecocultural Meanings): Identity/Being & Relating**
  - **RQ1 (Core Ecocultural Meanings): Acting, Feeling, & Dwelling**
  - **RQ2 (Dominant vs Place-based Discourses): Objectification and Fragmentation, Continuity and Relationality**

<u>Dialectic 2: Idealism—Embodiment</u>

- ***Idealism & Fragmentation***
  - **Participant Themes**
    - Idealism at Regional and Global Scale: Water, Overpopulation, and Saving the World
    - Pollution and Organic Identity Crisis
- ***Embodiment & Continuity***
  - **Participant Themes**
    - From Fragmentation to Continuity: Toward Embodiment in the Practice of Cultural Flooding
      - *"Water Banking" and Shared Water Practices*
      - *Embodiment and Shifting Understanding of Ecocultural Relations*
      - *Acequia Floodwater, Wildlife corridors, and the Microclimate*
    - Acequias, Community Connection, and Critiques of Water Governance
      - *Water Pollution and Food Safety Policy*
      - *Injustice and Loss, Regeneration and Catharsis*
- ***Summary of Idealism—Embodiment Dialectic***
  - **RQ1: (Core Ecocultural Meanings): Identity/Being, Relating, Acting, Feeling, & Dwelling**
  - **RQ2 (Dominant vs Place-based Discourses): Idealism and Fragmentation, Embodiment and Continuity**

Dialectic 1: Objectification—Relationality

The first dialectic that emerged from participants' talk is marked by tension between conceptualizations that objectify water and those that complicate, trouble, or directly contradict such objectification through relational language. Conceptualizations that objectified water came mostly from white participants who had only quite recently started working in traditional farming in New Mexico, and who grew up in places where water was quite abundant. Relational conceptualizations came mostly from Indigenous and Chicano participants with direct community and/or heritage ties to traditional farming in New Mexico, and white participants who had spent significant parts of their life working directly in traditional farming. Not surprisingly, several participants produced utterances with aspects of both objectification and relationality, which points to the important notion that many people are in the process of questioning their core cultural meanings and assumptions about their relationship with water and waterways, and reimagining their own ecocultural identities.

In objectifying talk, participants discussed water as a measurable quantity, limited resource, and inanimate but necessary input for growing food and other primarily human-centered needs. Here, I use the term objectification to mean the reduction of complex relational life systems to discrete, isolated, and inanimate objects. Tension in this dialectic emerged when participants began to complicate objectification by describing water through relational and emotional conceptualizations. In relational and emotional conceptualizations that began to trouble objectification, participants described water as a source of both joy and sadness (due to "decreased quality"), and a powerful force with its own agency to create, destroy, and bring life to place, and a source of important learning

experiences. In relational talk that directly contradicted objectification, participants focused on the fundamental interdependence between their own lives and actions and the more-than-human life supported by waterways. First, I analyze participant utterances that demonstrated objectification. Then I move to those that troubled or questioned objectification, and finally, to those that directly contradicted it.

Objectification & Fragmentation

Here, I explore utterances that largely lean toward the objectification side of the objectification—relationality dialectic. In these utterances, participants conceptualize water primarily as a measurable quantity and resource for human benefit. It is both important and hopeful to acknowledge that despite the objectification depicted in these utterances, most also show some semblance of relational understandings of water. The themes that emerged on the objectification side of the dialectic are conceptualizations of conservation through measurement and construction of smallest quantities, and tension between guilt and convenience in individual water use.

Conservation Through Action of Measurement and Construction of Smallest Quantity

Several participants associated their immediate perceptions of water with its use in practices both at home and in gardening and farming. As participants discussed acting in terms of water, many tied their immediate perceptions of water to measurements of quantity, sometimes in terms of specific scientific scales for measurement, and in other cases, general notions of scarcity and abundance. In terms of quantity, participants generally discussed practicing forms of what they deem “conservation” or “conserving.” For example, one farmer, Owen, who grew up on a farm in a Midwestern state, moved to Albuquerque more than two decades before the time of the present study, and has held

multiple leadership positions with RGCF, in response to the question "when you think about water, what's the first thing that comes to mind?" said "Shortage of rainfall, but uh, an abundance on some winters and some springs of snow pack" (Owen, mid 40s, White). Owen pointed to the importance, as a farmer, of documenting and anticipating how much rainfall and snowpack occurs or might occur in a given season. Owen deemed the technological capacity to measure water levels and the scientific methods to accomplish this measurement meaningful for apprehending water because of their use value in planning for irrigation. In this case, Owen represented water as a variable quantity, with the potential for different consequences based on varied quantities. Owen did not directly describe a sense-of-self or sense of relationship in terms of water. When asked to consider childhood memories, Owen responded,

> In [midwestern state] I grew up on a farm. Um, we have a silty loam soil from glacier pushed down and we were at high ground, so not close to any rivers. So we actually held onto our water pretty good. Our salt water table was about 90 to 120 feet down for salt water. And then we actually had a fresh water table around 45 feet. Okay, and we didn't have to irrigate at all. It rains and when it rains, it's enough.

In this example, when considering the place where he grew up, Owen expanded his description to a sense of place that included some of the geological features that explain how water has historically shaped the region where he grew up (US Midwest). Thematically, a description of water and place that includes geological features exhibits marginally more continuity with life systems than descriptions of exclusively abstract, technical measurement. However, in this example, Owen's talk about historical-

geological water processes did not directly include specific relations with more-than-human life.

In this next excerpt, Owen conceptualized "conserving" based on geological features and weather events—conservation, in this case, happened with water "on the farm" and "during drought years," included having to "get water from somebody else," and conservation (irrigating less) was done because the water table was "fragile":

> Yeah, you know, because we had those two different waters, the fresh water table was a little bit more fragile. So it would go dry some summers when it was really dry out and then we'd have to go get our water from somebody else cause we were at such a high level considering that [midwestern state]'s so flat, but we were so much above the water table, so sometimes we would have to go get water from somewhere else on a dry year. Um, so we'd be very, you know, conserving very closely then.

Here, Owen described conservation actions that were based exclusively on technical measurements of water levels. In addition, the action of conservation was constructed through a one-way flow of water from an undepicted location to the farm ("we would have to go get water on a dry year"), and only as a reaction to specifically dry years, or years in which measurements of the aquifer and rainfall/snowmelt were lower than average. Fragmentation occurred in this description of water relations when Owen relied on a symbolic border inside of which water was conserved (the fragile water table). However, outside of that border, water was reduced to a transaction, retrieving water from an invisible and vague location ("go get water from somewhere else"). The concept of fragility ("fragile aquifer") does offer the potential for a relational understanding of

water, specifically in terms of co-vulnerabilities between different living beings and forces (e.g., prairie wildlife, soil health, humans' agro-food needs and actions, and the many different water flows of which each are part and depend on). However, when conceptualizations of conservation action rely too heavily or exclusively on very specific technical measurements (e.g., rainfall, snowmelt, and aquifer levels), those conceptualizations can obscure or erase how vulnerabilities at one scale (fragile aquifer) might interact with those at larger scales (in this case, the vague and inanimate description of "somewhere else").

Brian (mid 60s, white), a sustainability scientist and part-time gardener at RGCF, when asked about water generally, talked about very specific techniques for measuring water content in soil, as well as different irrigation techniques' relationship to various strategies for planting and growing. For Brian, the most immediate meaning about water existed within in the action of applying constructs of regional water measurements to specific dynamics on the farm:

> Then, you know, as a scientist, I'm really interested in like irrigation and uh, I put together calculations that I can use data that are available online from a nearby weather station, at Candelaria farm, the data maintained online by the Bureau of reclamation. I just download that and put it through Matlab. And then I calculate annual irrigation needs and growing degree days, schedules and things like that. Um, and now I'm using that to design a novel way of predicting when the last frost of the spring will be so that farmers can plant, according to their risk aversion. So for instance, if you're really risk taking, you, you know, you, maybe you're happy to

> have your seedlings frosted out five out of 10 years, but at least you'd get some of the things growing earlier than other people. And be more competitive in the growers' market, whereas other people are more risk averse. So for them the planting date is later, but you don't want it to be too late because then you're throwing away a good growing season, you know? So I've been working on that and I designed a set of what I call kiosks educational kiosks for the farm, which should be interactive displays about water and energy balance. You know, uh, topics that are really difficult to teach. But I think with a hands-on demonstration of like a Teeter totter that balances of water input and water demand, you could start communicating these things and soil core information.

Brian eventually discussed conservation as one of his principal goals, but in the final instance, the driving force behind conservation was to be able to teach people why specific interactions between operationalized variables and measurements (e.g., time of day, period of the season, average annual rainfall compared to the present year's rainfall, calculated growing-degree-days) should inform one's irrigating and planting practices. Whether someone is motivated to learn in order to "be more competitive at the grower's market" or by the knowledge that they will get a late but more secure harvest, Brian's primary understanding of water promoted the application of specific technical measurements, in order to produce an informed economic advantage.

The utterances in this section are grounded in a conceptualization of water as a technically constructed quantity that can be manipulated, and when necessary, used carefully, in order to accomplish the human-centered goal of growing food. Participants

constructed what constituted the smallest quantity through technical measurement of specific water flows and changes in physical state deemed as important to that goal. The core ecocultural premise involved in this view of conservation was the rationalization and objectification of water as a quantity that can be, if manipulated technologically, maximized for efficiency in attaining economically-centered goals. The second utterance was also guided by the fragmented ecocultural premise that careful water use is a periodic and reactionary task, something that has to be done every now and then, but lacks grounding in any core relations with more-than-human life. In part, this may be due to the participants' conceptions of water-in-place, having grown up with abundant rainfall that meant farming required little to no irrigation.

While participants' motivations to conserve water may have come from a variety of influences, the primary premise displayed in this talk was one of rationalization and exchange for the primary (human-centered) goal of producing food. Fragmentation occurred in participants' focus on very specific measurements, as well as conceptualizations of water as an inanimate and isolatable object, in that these conceptualizations obscure and erase the relations between flows of water and multiple, interdependent forms of life. In the next section, I look at talk from participants who began to trouble such objectification, yet still tended to lean toward dominant conceptualizations of action.

Individual Conservation Action, Guilt, and Convenience

In this section, I look at examples of how participants identified different value origins (or lack thereof) for how and why they are careful (or not) with water use in their homes and farming practices. I compare participant-identified origins of careful and

reckless water use in their talk about community relations with and emotions about water. Tension emerged between guilt and convenience (feeling), as well as between conceptualizations of water conservation as an individual act and those that depict conservation as a community relationship. Angie (mid 70s, white), a life-long farmer, environmental activist, and representative of a local master gardeners' group certified by the extension office of a large state university in New Mexico, gave this initial response concerning her understanding of water:

> I like to say first memories was that it's an unlimited resource and it's, you know, the swimming pools are full and you can run the sprinkler anytime you want. What changed that for me was growing up, you know, hanging around with people that are trying to do a better job of what we do.

In this utterance, Angie did describe water as a "resource," or in terms of its use value to people. Within the logic of water as a resource, Angie also implied that depending on the social or cultural groups to which a person belongs, and the embodied experiences a person has with water, that person may develop different values about the quantities of water a person can or should use, and how to be careful about what activities or practices use too much. Angie continued:

> Water quality…that's pretty general, but I've been thinking about what's happened to water quality in my lifetime. It's just pretty sad to see, how quality has decreased. And then also…what you're doing, you know, trying to conserve, don't stand in the shower until the hot water runs out. I mean, yeah. So yeah, it's, it's a limited resource and that it's that, that I think at this point, how can we prevent the quality from getting worse and

> better use it? Yeah. How can we learn to use it better? How can we get more of a benefit out of what we do use?...at home I almost always use water more than once. I take my dishwater out to the garden that only has organic soap.

In her initial talk about water, Angie displayed more continuity than previous examples. Angie located the solutions to collective ecological issues (e.g., "water quality" and not only quantity) in actions of individual conservation (e.g., "don't stand in the shower until the hot water runs out"). Angie went beyond describing water as a measurable quantity, and described a feeling of loss in terms of water's *quality*, alluding to a time in her past when water was less polluted by human action than it is now. Angie did also understand water as a "resource," and a source of "benefit" from which people can "get more of a benefit" depending on how they care for water's use. In so doing, Angie also reproduced some aspects of dominant conservation logic and discourse. When asked a probing question of what actions should be taken, Angie focused heavily on individual action in the home, describing specific practices she considered to be essential home conservation. However, in contrast with previous examples entirely grounded in technical measurement, Angie suggested that her motivation to practice very careful water use came from, at least in part, a community that encouraged and supported that care.

On the contrary, some participants talked about a dissonance between a sense of responsibility to conserve and their own actions. Alex (mid 20s, Asian American), who grew up in the Pacific Northwest, using very hard well water that required a great deal of

patience to filter to make it safe for regular drinking, described exactly this kind of dissonance now living in a desert climate:

> I feel extremely guilty because I take multiple showers and even when I brush my teeth I leave the water running. But I guess it's not because we're in a drought right now. I've never experienced a true drought like where the city is telling you not to use the water. So in my house I use water like really liberally. Because It's like tap water I'll drink it if I'm in the shower or if I'm in the kitchen so. I guess I take it for granted that I can use the water whenever I want. And I feel guilty, but I still do it. I mean if I had a bus pass and I had a car I mean I'm gonna take my car. But I've never experienced a true drought like as a human. Like with plants or like the farm I have experienced a drought where the plants are suffering, but not like a true drought where like the city is really suffering where they you know don't water the lawn or like I don't know about if we have that kind of policy in the United States.

Alex's talk reflected a clear dissonance between emotion and action, as well as another fragmentation in the depiction of water flows. On one hand, one might imagine that he would have developed a similar set of careful actions with water in his life to those of Angie, having a sense from childhood of how much time and work was involved in getting safe drinking water. On the other hand, Alex himself pointed to the reality that he had never experienced a "true drought" in which, for example, a city forced water rationing or at least mass communicated the dire need for people to be very careful with water use. Another fragmentation emerged from Alex's talk – that a "true drought" is one

in which humans, not just "plants, or like the farm" are suffering. A "true drought" for Alex, was defined as human leadership's reaction to a decrease in measured water levels, and the way humans might be affected by the lack of water. In so doing, water relations were once again reduced to human reaction to measurement.

Alex also could not identify any national policy or language about water conservation that would have encouraged or forced conservation behavior. While the present study cannot determine for certain what would be the tipping point for someone to change their behavior, it does seem that a combination of embodied experiences with the labor involved in getting safe water *and* exposure to care-oriented cultural discourse within one's community seems to have had a more significant influence on how participants' saw their own action in relation to water than either one alone. Moreover, Alex identified convenience as a core ecocultural premise guiding reckless water use but described a fundamental dissonance in that premise, resulting in feeling guilty.

I argue that at least part of why this tension goes unresolved is due to another materially constructed fragmentation, a symbolic boundary drawn between all of the flows of water that occur prior to and after turning on a tap. The invisibility of these flows (from the river, storm drains, through filtration and sterilization, pressurized piping, or wells, to drains, sewers, waste treatment, and reprocessing or dumping back into streams) influences reckless water use based on the spatial construction of convenience and overabundance. However, because guilt is involved, this recklessness is not based on some false consciousness or illusion (although exacerbated by the invisibility of flows), but rather the Western (and industrialized) ecocultural premise that technological

development affords material convenience, and convenience takes priority over other forms of relating.

Participants' recognition and sense of guilt over the destructive implications of reckless use provides a glimmer of hope that, through the continued support and expansion of place-based, mutual ways of knowing, people may see their way to shifts in their practice-based ecocultural identity, shedding the toxic relationship of convenience and guilt for catharsis and mutuality. However, in the examples I have just explored, the objectification side of the dialectic seems to win out over the relational/emotional side, evidenced by participants' focus on individual action. In the next section, I turn to exploring utterances that lean toward the relationality side of the dialectic.

Relationality & Continuity

In this section, I look at utterances that emphasize relational understandings of water. The relations that participants describe involve community-driven ways of relating that emerge from long-term dwelling and mutual survival in specific places, or relations-in-place (Milstein, et al, 2011) and powerful emotional experiences with wild water and survival in drought and dry places. The final set of utterances in this section deals with the theme "water is life" and exhibits conceptualizations of water relations that fall furthest toward the relational pole of the dialectic.

Emphasizing Place and Community in Conservation Actions

Alejandro (mid 30s, native New Mexican), provided examples of how place-based ecocultural experiences, when paired with discourse communities that strive for mutual relationships with waterways, offer the potential for more continuity between multiple water flows, personal concepts of what constitutes conservation, and the

grounding of those concepts in survival and protection of multiple, interdependent forms of life:

> Yeah. I know for water, you know, water here we've been, like I was saying, when we run out of water, that's one of the hardest things. So that's, we've got, we've got the well to, you know, ensure that that doesn't happen. And um, when the most integral thing, I guess it's just like the daily access to water is I think something that we're really lucky to have but just can go to any faucet here and drink water and yeah, cause you know, when I was living in Ethiopia, I drank rainwater, I would capture the rain water and drink that or filter it sometimes.

Alejandro, who has gardened and farmed in some capacity for most of his life, also offered (immediately below) an example of both place-based embodied experience *and* a discourse community shaping his understanding of water conservation, expressing continuity between place, personal and relational meanings, and community practice:

> Yeah. Yeah. And like, you know, we have family in California. So we'd go and we'd, I, it was funny, I was telling my nephew or my cousin, he was letting the water run doing something. God knows what you know. And I said, turn off the water, you're wasting water. And he said, why do you, your dad just told me that. Why do you guys always say that? It's where we're from. You know, this lady stops me at the farm, everyone, anytime she sees water running over at Tres Hermanas Farms. She says, you've got a leak here, or there's, I hear water coming out from here three days in a row now, can you check that out? So that's like, I think

> constantly on a person's mind in New Mexico is the conservation of water…Our parents always telling you don't waste water, don't let the water run. You know when you got, when there's, you know you're out watering with the hose and there's a little hole in the hose is leaking out, put it on another plant. Yeah. Brushing your teeth and don't leave the water running, when you're doing the dishes. Yeah. You don't have to flush your toilet every time you pee in it. So just day to day tasks, too.

Alejandro described a number of important core ecocultural meanings based on two important premises that are part of place-based care for water in New Mexico. For Alejandro, to have water at all is a privilege, and humans' role should ensure that if practices involve influencing the movement of water, that such movement should be shared by multiple forms of life. In addition, Alejandro described a communicative cultural premise that involves being mindful and aware of flows of water that are not being directed toward or for life, and helping those flows move in life-giving ways.

Decentering Human Agency: Vastness and Abundance, Vulnerability and Drought

In this section, I look at utterances in which participants describe water in ways that suggest it has agency, such as the power to create and destroy. Participants' talk in these utterances centered around the hub of feeling and the radiant of dwelling. In other words, participants described specific feelings that arose from being-in-place. Many participants remarked on the mystifying power and vastness of oceans or large rivers. Consider, for example, the following two excerpts:

> I don't know how significant this is, but just how enormous the Pacific Ocean is, and just being blown away by that. You hear stories of people

> who would just like float, and be able to survive after a crash or something. Yeah, just specifically about how big the pacific is. And water, and just how mystifying it is, how big the ocean is (Alex).
>
> I've got two sons and when they, when my sister was living in Salt Lake and we went to the Colorado River to do some rafting, it was pretty wild, and I couldn't imagine the power in that river. All of a sudden I've got these two little kids, you know, you better, you know people die, you gotta be careful. This river is really, really powerful. And that was decades ago too, it stuck with me. It was an experience of a river that I had not had before. What a powerful source of goodness and destruction it is for us anyway. I mean, we see the destruction, but the planet can do just fine (Angie).

In both of these examples, the participants described having experienced overwhelming emotion through embodied encounters with the ocean or large rivers. Each demonstrated that embodiment in places with powerful flows or vast quantities of water has shaped their understanding of human relationships to water. The first excerpt referred to stories of exceptional survival on the ocean, moments in which people lost all control and had to submit the possibility of survival to the incomprehensible vastness, waves, and currents of the ocean. The second discussed a personal experience in which, upon feeling the power of a great river's flow just below the thin floor of a raft, on all sides, controlling all movement, the participant was presented with the palpable reality of both her children's and her mortality and survival. Almost unanimously, every participant who talked about being out in or physically near large bodies of water or fast-moving water

also discussed experiences of feeling completely out of control, and the force or weight of water changing or entirely crumbling their sense of agency.

In this next utterance, Angie talked about the intensity and anxiety she felt during the particularly intense drought in New Mexico (and much of the US West) from 2011-2016:

> Thinking about the drought years I mean that, I mean there were, there was a series of years, it felt like it was never gonna rain again. And the trees are all dying. And you think well, and then it changed. And it will change again and it will change again. But there's so many of us now. I mean, I think this is part of, you know, what, so many more people that want to, that need water and want water, and some of them, well, see this as a completely different situation.

Another participant, Annie (late 20s, white), who grew up in a small town in rural southern New Mexico and became a farmer 10 years before the time of the present study, talked generally about water in terms of feeling and dwelling:

> Lack of it really. I, I grew up in [town name], which is, you know, 30 miles north of the border. The Rio Grande down there is dry and you know, rain actually used to be more common when I was a kid. I remember the summer monsoons being so magical and just like riding my bike around the hood as a kid and wanting to get caught in it if, if I saw the storm clouds coming and just like feeling alive but then also hearing, and I was young hearing that there were like drought problems and stuff cause there's, it's a big agricultural community down there too…My mom

> grew up on my granddad's farm and so we'd talk about it. And so just trying to understand that even though it felt to me like these magical occurrences when the rain came from the sky, like just knowing that without that we wouldn't be here but also like there was never enough to go around and that's part of why [town name] was so brown. Definitely, yeah. Like as a, yeah, as a small little desert poverty kid.

Like other participants, Annie reflected on how the feeling of the scarcity, rather than abundance, of water shaped her understanding of agency between people and water, that people are entirely dependent on the rain, because without it, there is no other existing way to survive there. The tension between feeling overcome with joy every time it rains, and feeling anxiety about whether it will be enough, is a common feeling among farmers, particularly those that rely upon acequias.

> And even then, even over the course of nine seasons, you know, it's like there's a couple of seasons where you get into a groove and you think you know what to expect. And then the following season is the literal complete opposite. Or like last season was the first season I had ever seen with so much rain in the spring that the river flooded. And we had all of these issues too with it because of it and timing and how the weather changed and everything. So really just like having to adapt and like roll with it, like be just as fluid as the water is and like our practices here and just trying to do as much as we can to save it all and to store it all on the farm as much as possible. I hope that over the years, if there's a year where we don't get any flood water, these plants would still be able to grow in these flood

> areas cause there's still that store of water close to the surface. The trees will help pull up and everything, you know, so it's like, it's all of these things.
>
> And one thing I noticed too is that like the water was very intimately connected to how people treated each other. Okay. So like when I remember being up east. I feel like there was an overabundance of this scarce resource or I had seen a scarce back in times of overabundance where it would just rain for a week. Whereas like down in Deming, we would like celebrate that. That'd be like literally a miracle. Everyone would be stoked right up there. People just treated each other bad. They'd get into moods, fits, like they hadn't seen the sun for so many days and they just could not handle it. They would complain about it. And here I was again, this little desert dirt baby, just like, aren't y'all stoked? This is how we all live such lush lives. You have not seen the other side of this, you know? So it's definitely like this really intense dichotomy that again, I never really thought about too much, but felt deeply in my core. Yeah.

Annie showed very clearly how through reflecting on embodied relations with water, from a place-based perspective, the agency of multi-species survival was founded in a give-and-take relationship of constant learning from being present and attentive to land and multiple water flows. Annie even saw her own part in the actions she deemed important to survival as needing to learn to be as fluid as the water in how she changed her own actions with the changing context of water in the era of longer droughts. As the next section demonstrates, at the scale of place-based communities, this change is not a

self-transformation *per se*, as it may be for individual farmers who talk about their personal transformations, but rather the recharging and restoring of very ancient community-scale ways of knowing water as the source of all life.

Agua es Vida: Water is Life

In this section I assess participants' meanings as they related to and reconstructed discourse grounded in Indigenous struggles for sovereignty, including the liberation of more-than-humans, rivers and river life systems from destructive, colonial ecocultural practices. Participants engaged in talk laden with personal and experiential connections to the core ecocultural premise: water is life. Upon this premise, participants described water as the source of life, as well as being a life form in and of itself. Water is life discourse originated in Indigenous communities and has become the anthem of people all over the world fighting to protect waterways from colonial and capitalist forms of destruction. As an ecocultural premise, the water is life movement and way of knowing fundamentally reject the commodification and sale of water for profit as well as the further destruction and poisoning of waterways by extractive industries. The participants who engaged in this discourse were all either Pueblo Indigenous and genízaro with ancient roots of heritage and place-based practice in New Mexico, or white people who have dedicated their lives and livelihoods to supporting and being a part of place-based lifeways and water systems.

Xavier, a native New Mexican, who started farming as an adult in his mid-30s, described water through daily embodiment *and* an evolutionary analysis of water's role in multiple forms of life:

> Like its daily role in our lives. We can't you don't go one day without dealing with water. It's the most integral thing you know. And even for people who don't farm. You shower you drink water you know no matter what you do. Water is the medium where all things are done…it's 80% of our body… All life literally begins with water. Life began in water. Even we all came from it. But the first things that were on this planet you know cyanobacteria were living in water. You know life couldn't have evolved without it…the plants we eat the food we eat the water we drink. You know it all came from water.

Annie described the presence of water as the only way for people to live anywhere, as the most important part of all life on the planet:

> Like life mostly. Like that's the only ability, that's the only way that we're able to live here and live anywhere really. It's like the number one thing that I think the why life of all known this planet and everything they say it's rumored. Do you know, we weren't there. We can't say for sure, but it really is just like a powerful force. That's pretty much what comes, comes to the forefront, powerful and like a creative way, also the destructive way, which is pretty neat.

Robyn echoed both Annie's and Alejandro's sentiments, describing water as "essential," something that there is not a lot of. Thinking about human action, Robyn's general understanding was that, as a state, New Mexico should avoid and development of any kind that further disrupts historical and present day Indigenous ecocultural in New Mexico:

> Um, just the word essential is the word that came to my mind. Um, and like a treasure. Um, yeah. Something that we need and don't have a lot of. And that gets used for maybe, yeah. Like I don't want to see any more people come to New Mexico and cause I don't want to see anymore. Like, I don't know, what is it called? The Mesa developments, like those housing developments and they're piping out much water and it's like, I don't want to see more of that. I want to see water stay where it is and be used for what, like what it needs to be used. Um, I don't know. First for supporting this place. And the people that have been here for a long time. And that's through growing food and that's through keeping the landscapes green that have been green for a long, long time and not necessarily greening spaces that aren't used to having lots of water on them, like not carting water off to other places for development and profit (Robyn 18).

It is important to recognize that Robyn's critique of population was different from others I have analyzed and will analyze, because it was grounded in a specific understanding of place and pace-based practices rather than an abstract quantity of people and water. The core ecocultural meaning is that all water should go first to supporting the ancient life systems in the valley, as well as the place-based peoples that have dwelled in the valley sustainably for thousands of years. This distinguished her critique from those that would argue, for example, over the next 100 years the city would need to conserve "X" quantity of gallons of water in order to support population, industry, and economic growth and development, or those that would argue that, as long as the population does not grow, industry and economic growth can continue business as usual. It also

distinguishes her critique from those that argued that all efforts for water change are secondary to immediately and aggressively reducing the population. These two final quotes concerning water in direct relation to life captured a number of participants' sentiments about water, particularly those that have spent the majority of their lives in New Mexico, and especially those who come from long-term farming backgrounds:

> Whenever I'm talking to, especially kids when they come to the farm, I always start by asking them when you look at me, what do you see? You see water. My body is mostly water, and so is yours. It's the thing that connects us all together, so when you hear me say el agua es vida, water is life, agua es vida, that's what it means. It gives life, it is life, and so we have to protect it, because what else is there really, if we don't have water? I am water, just like you are. When you sell water, it's like you are selling people. (Manuel)

> So water is not, it's not just H2O, man. It carries life all life and it carries all kinds of nutrients that are micro nutrients and macro forms of life. Um, and pollutants. It carries whatever we put into it. Yeah. And so, yeah, that's, it's up to us what it carries in the end, at least when we use it. (Alejandro)

In this section I assessed participants' meanings surrounding the place-based discourse of water is life. Water is life is founded on the ecocultural premises that human relations with water should be grounded in mutually supportive ways of relating and giving as much back to the land in agriculture as they take for survival. Moreover, water is life is the continued fight for the protection of waterways from the colonial and

capitalist forced removal and destruction of native lands through dam projects, as well as the commodification of water for profit in capital markets. Participants also made arguments that water should be primarily routed to supporting the river biosystem, as well as the surrounding lands that have been ancestrally flooded for many hundreds of years, and for the support of place-based communities whose lives have generally been an afterthought of dominant regimes of water governance.

Summary of Objectification-Relationality Dialectic

In this section, I analyzed participants' talk about water in their day-to-day lives and on the farm at RGCF for explicit and implied ecocultural premises and meanings they associate with water. I looked at several themes that emerged in participants' initial talk about water, and how participants, through those themes, constructed meaning about self, relations, actions, emotions, and place. I argue that their meanings are organized, in part, by a dialectical cultural discourse of objectification vs. relationality. Here, I summarize that discourse through individual tensions in the five hubs of CuDA. (See Table 1 for a visual summary.)

RQ1 (Core Ecocultural Meanings): Identity/Being & Relating

RQ1: What core ecocultural meanings compose RGCF farmers' talk about water in their daily lives and farming practices?

Participants who produced talk on the objectification side of the dialectic constructed identities as individual, average water users. In participants' talk, the identity of individual, average water user was implied (CuDA radiant) through the objectification of water as an inert quantity with a singular value, measured in terms of gallons per capita. In the construction of water as an object (albeit an important and vital one),

participants simultaneously limited their understanding of themselves to more or less careful individual users of water. This conceptualization reduces the complex interactions of ecological systems, and multiple forms life that make up water ways to a relationship of "user" and "used." In other words, objectifying water as a limited quantity, object, participants also reduce themselves to they abstract identity of a standardized individual user, which is only meaningful in terms of quantity of water used/per capita.

On the relationality side of the dialectic, participants understood their identities as inextricably tied to the life and health of waterways. These participants argued that it was both their cultural and ecological duty to protect waterways, and that water should be shared by all forms of life, directly contradicting the commodity way of knowing water. These participants understood their relationship with water as one of shared vitality with multiple species along and in waterways, and in seeing themselves first as one living being among many, showed a sense of self primarily understood as belonging-in-place, and drawing life and sense of purpose from the water and acequia system.

RQ1 (Core Ecocultural Meanings): Acting, Feeling, & Dwelling

On the objectification side of the spectrum, and especially on the farm, participants' meanings for acting with water involved conservation defined as the highly technical control of water flows as well as technological production of water (i.e., there is no water shortage, or we would be paying through the roof for it) to meet the demands of other technically produced conceptualizations of farming goals (i.e., growing-degree-days). Participants conceptualized action with water as control over the efficiency of water use (i.e., use less, get more) on the farm and in their own homes.

Also, on the objectification side of the spectrum, a core cultural meaning in which participants related acting and feeling involved a perpetual cycle between guilt and convenience. In this cycle, participants felt guilty for being reckless with water use in their homes, and contributed their failure to change behavior in response to this guilt to the convenience of simply paying a higher water bill. In this case, once again, the process of objectification reduces an important emotional response to wasteful and reckless behavior to an abstract quantity – a higher or lower water bill.

On the relationality side of the spectrum, participant-produced meanings surrounding acting and feeling involved conceptualizations of shared agency, and in several cases, participants conceptualized waterways as having their own agency to create and destroy, as well as draw multiple forms of life into their flows. Relationally-oriented conceptualizations depicted water as the source of all life, and as the historical and present-day connection between Indigenous participants' ancestors (and for all participants on this side of the dialectic, non-Indigenous participants and Indigenous participants alike, the connection to practices of protecting the continuity of those ancestral relations). By contrast, on the objectification side of the dialectic, participants described feeling a perpetual cycle of guilt and convenient action that did not resolve, but rather, reconstructed guilt, relationally oriented participants described feeling gratitude, respect, and connection that were consistently reconstructed through caring for and protecting the life of waterways. This is not to say that relationally-oriented participants did not also feel guilt, anxiety, and/or loss in the wake of destructive and extractive dominant water practices, but that engaging in relational practices with water has reshaped and expanded their emotional capacity in relation to more-than-human life.

RQ2 (Dominant vs Place-based Discourses): Objectification and Fragmentation, Continuity and Relationality

RQ2: How does RGFC farmers' talk relate to dominant and place-based discourses about water?

Participant meanings relate directly to both dominant and place-based discourses about water, with objectification reproducing dominant conceptualizations, and relationality producing place-based conceptualizations. However, as I have demonstrated, while most participants tended to lean toward one side of the spectrum or another, everyone's talk was in some way shaped by both poles. Here, I demonstrate the tension between the two poles.

In terms of dominant conceptualizations, when participants talked about water use in their own homes, almost all were influenced by discourses of conservation through individual action. In the discourse of individual conservation, individual actions such as installing low-flow toilets, grey water systems, taking short showers, and shutting off water during all nonessential moments in hygiene activities take precedence over and obscure the need for larger societal and structural action. In other words, leadership and extractive and polluting industry owners pass along the responsibility for addressing ecological crises such as drought and pollution to individual people and households, and that transfer of responsibility is normalized through the conceptualizations that objectifying people and water in a relationship of "user-used."

Although participants were largely aware of this reality, when constructing responses to it, some reproduced further objectification while others leaned toward relationality. For example, in reproducing objectification, participants described being

stuck in an emotionally destructive loop between guilt and convenience, from which they felt like they could not escape. I argue that this is largely due to ecocultural fragmentation between individuals' sense of self and water within their relationship to water, as general fragmentation between individuals and communities (i.e., they feel a lack of sense of community where they live, and/or they do not feel a sense of community in their relationship to water), as well as fragmentation between individuals' objectified conceptualizations of water in conservation action and the actual place-specific, historical ecocultural relationship to water.

On the contrary, those participants that leaned toward relational conceptualizations of water practices responded to the contradiction of the user-used relationship by describing a deep continuity between their senses-of-self and their concept of water as a living being (including both constructed identity as water protectors and the physical immediacy of their bodies being mostly water). Moreover, this relationality pervaded their conceptualizations of action, emotion, and place. Despite the prevalence of dominant product and commodity ways of knowing water that fragment water and communities from their historical ecological and cultural relations with place, these participants still understood the relations around the river as the true source of life in the valley. In doing so, they described feeling a sense of respect and gratitude for being able to share in the mutual vitality of the river and acequia waterways, as well as a sense of purpose to protect those waterways. On the far end of the relationality pole, participants reject the feeling of guilt directly as a function of dominant ways of knowing water as a product and commodity, and direct their emotional energy toward farming for mutual survival and thrival.

In summary, I argue that the dialectic of objectification—relationality is a cultural discourse that explains how some participants' core ecocultural conceptualizations of water are marked by fragmentation between self and other, and actions, emotions, and senses-of-place, while other conceptualizations are marked by continuity between all of these forms of meaning. It is important to recall that there are not simply two distinct groups of participants (or groups in society), one that produces objectification, and one that produces relationality, but that participants take up and are influenced by discourses that align with and make sense of their experiences of water relations. Because participants have experienced both fragmentation and continuity due to living in the context of dominant water practices (i.e., the city of Albuquerque, New Mexico, and the U.S. West), but also, to various extents, growing up in or choosing to engage with place-based ways of relating to, acting with, and knowing water. In the second half of this chapter that follows, I address the second dialectic that exemplifies fragmentation and continuity: the tension between idealism and embodiment.

Dialectic 2: Idealism—Embodiment

The second dialectic that emerged from participants' talk involved a tension between idealism and embodiment. On the idealism side of the dialectic, participants discussed water and ecocultural problems (e.g., pollution, climate disruption, prolonged drought) through abstract concepts and ideals in which embodied, place-specific experiences of these phenomena are obscured or removed from conceptualizations of ecological solutions. On the embodiment side of the dialect, participants described how they make sense out of the actual practice of flooding in the desert. Participants described this practice can con felt experiences with water that emerge from the practice of

flooding, as well as dwelling in the specific communities where they flood, and conceptualize cultural flooding as work toward materially and symbolically building solutions to some of the place-specific ecocultural issues facing the region.

Idealism & Fragmentation

The participant utterances I analyze here provide several examples of the idealism side of the dialectic. I particularly look at how idealism emerged when participants discussed the larger ecological problems facing humanity and envisioned solutions for those problems. Across participants, idealism emerged primarily in terms of solutions to problems at larger geographic scales (regional or global), as opposed to smaller, local scales. I begin by looking at utterances that concern large geographic scales and then move to looking at idealistic arguments about smaller scales.

Idealism at Regional and Global Scale: Water, Overpopulation, and Saving the World

Multiple participants used an idealist frame when talking about ecological problems and solutions, particularly at regional, and global scales. The following participant Paula (mid-40s, white, female) claimed that the only truly meaningful way to act collectively in terms of water policy, drought, and pollution was to drastically decrease the human population:

> The first thing that comes to my mind in terms of water, you know really broadly, is that there are too many people in the Southwest. We've got much too big of a population for the water resources that are available. And you can say, use low flow toilets, install grey water systems, grow drought resistant crops, stop eating meat and dairy, but these are they all

> need to be secondary to decreasing population…the fundamental problem is that there are far too many people. The first thing we I mean humanity as a whole has to do is take drastic steps to curb the population and then decrease it. We have to curb the amount of people being born.

In this utterance, Paula made a number of explicit and implicit arguments about human relations with water. At a first glance, Paula replicated earlier arguments that objectify water (and people), reducing multiple, complex, and disparate ecocultural issues to one issue of overpopulation. Idealism, however, goes beyond a simple reduction to numbers, and rather, removes all sense of material and historical power relations in which "decreasing the population" would inevitably have to take place, and has and is taking place in the forms of genocide, forced-sterilization, and sacrifice zones. The idealism of Paula's utterances also erases agency in multiple ways from human and more-than-human relations. On one hand, this idealism reduces all human action, despite fundamental distinctions between regenerate and destructive relations, to existence and nonexistence ("We have to curb the amount of people being born"). On the other hand, the embodiment of population reduction (embodiment here meaning, the concrete action and the experience of actual people in their own bodies), has always involved extreme forms of violence against whole peoples and cultures, namely women, Black, Indigenous, and Jewish people, other religious and political minorities, LGBTQ+ people, working class people, and people living with disabilities. In other words, the practical and material implications of population decrease arguments have *always* included violence against the same people who bear the majority of the burden of human-caused ecological degradation. To be clear, I am not arguing that Paula or any other participant who argued

that population is the primary problem believe that genocidal practices are the solution, but rather that idealist arguments are both dangerous and inaccurate.

Andy also produced idealist discourse when he talked about how water relates to hunger and proposed solutions to hunger:

> Yeah, especially with GMO or like using more salt nutrients, I think it's like do you want to save the world? You know we're not going to save the world that quickly waiting for cow manure to decompose. Like if you wanna save the world, you're gonna have to use, like these crop species that were developed to do its job. I know its gonna hurt, like farmers in India if they don't like, reproduce the second year because there's locks on its genetics. But I mean if you wanna save the world or like grow them faster, you could just do it in hydroponics. There's certainly the turnoffs of like growing in a warehouse, but I think you have to use both. It's unaesthetic, but if you want to feed the whole world, and like the world is suffering, then you should just use the best way when you could grow it as fast as possible.

Similar to the idealism expressed in Paula's statement about population, Alex's argument about saving the world is based upon the reduction of complex relationality to speed and quantity. Again, however, the implications involve a departure from the material, historical, and ecological relations from the solution. In this statement, Alex conceptualized "saving the world" as getting food to humans and the life relations that compose agroecological farming practices, like RGCF, as "aesthetic" but essentially unnecessary. While Alex does argue that "you have to use both," hinting at the potential

for considering how multiple practices and technologies might be brought together to work toward lasting and regenerative-food systems, the idea that long-term and cyclical processes of decomposition are unnecessary for food systems is another form of idealism and fragmentation, separating human survival from the fundamental life systems. Moreover, the notion of "saving the world" is based on a fundamental fragmentation between the sources of hunger (e.g., capitalist systems that promote food waste and uneven development, mass monocultural crop production for industry and fuel, etc.) and the construction of long-term solutions.

The utterances in this section demonstrate examples of participants' idealist notions about water relations and practices that fall almost completely on the fragmentation side of the spectrum. Fragmentation, as I have demonstrated, occurred in part between the CuDA hubs of relating and acting, in that participants' conceptualizations of solutions to ecological problems are disassociated from the ecocultural structures, relations, and practices that are primarily responsible for those problems. Within the conceptualization of ecological problems as primarily a problem of quantity of people, there is no possibility of conceptualizing a restorative ecocultural identity, or identity at all, for that matter. That is, in the idealist construction of population control, restorative ecocultural identities and choice are indistinguishable from exploitative and extractive practices—what matters is a quantity of water per capita. Moreover, the argument for "drastic measures to decrease the population" implies that this conceptualization does not involve gradual, cultural trends toward people choosing to have fewer children, but rather, the enforcement of policies quite grim to imagine. In the following section, I look at utterances in which participants begin to express forms of

embodiment as they grapple with the contradictions of organic certification in the context of wide spread pollution caused by conventional farming.

Pollution and Organic Identity Crisis

Several participants expressed concerns regarding water pollution, and the potential influence of that pollution on health as well as on home and farm activities. Some participants drew their concern from a perceived loss of capacity to maintain an identity of carrying forward "organic heritage" or, in some cases, participants felt like the community farm leadership should do a more careful job of sourcing materials, such as manure that have not. Others still were largely concerned about how small scale, organic farms are being scrutinized for the pollution (and other ecologically toxic issues, like diseases caused by abhorrent factory farm conditions) created by large-scale conventional farms. In participants' talk, the source of and responsibility for this pollution were in tension. Participants saw pollution as a result of a system problem, but also felt dissonance, because they were using the same polluted water on their fields, although it was implied that other viable choices are unclear.

In this excerpt below, Brian highlighted the uncertainty about pollution in acequia ditch water:

> I, I am curious about things like water quality. So as I understand it, agricultural water is exempt from EPA standards. So who knows what's coming down the channel and then you're putting on your field. Um, to me that, that's a question it would be worth getting a handle on (Brian).

Brian referenced the fact that even in USDA organic farming, "agricultural water" (meaning irrigation water) is exempt from EPA standards (USDA, 2011; University of

California Small Farms, 2020). While the USDA suggests that water should be tested, and there are guidelines for testing water, there is no enforceable rule that determines the limits on harmful chemicals dissolved in water that runs off into the river and eventually arrives at acequia-fed farms. However, of course, if too large a concentration of herbicides or pesticides enter the water that organic farms use via runoff from large conventional farms, building up in the soil, an organic farm could potentially delay or disrupt the farm's organic recertification. Brian's (and most likely the MRGCD's) lack of clarity on the quantities and concentrations of particular compounds in river water was reflected by several other participants. For example, Katherine, remarking on the ancient history and heritage of organic farming[11] at RGFC and the larger valley, said,

> Well, my, my supposition is that a lot of people upriver from us, use a lot of phosphate containing, you know, fertilizers and things. And then there's, you know, of course the cow manure that all washes down and bird manure and whoever else's manure, that washes down the occasional human manure that gets in there. Um, so it makes me think that there's probably compounds in our water that we're using to irrigate that would make us, you know, not true to our organic heritage. I mean, that's what one, the one thing…we tried to do low till. We try to do organic, you

[11] Acequia-based Nuevo Mexicano farmers often refer to their practices as traditional or place-based, in order to both distinguish themselves as more careful and more aligned with local ecological processes than the often tenuous and one-size-fits-all organic standards of the USDA, as well as to desmontrate continuity with ancient Indigenous heritage, and the pre-European contact history of agroecological practices. Many farmers at RGCF and in New Mexico now operate in the context of Nuevo Mexicano traditional farming, but as transplants or immigrants with different origin stories, they do not share, or have not adopted the ecocultural discourse of traditional Nuevo Mexicano ecocultural identity (Hoffmann, 2018).

> know, I don't use inorganic, I use a lot of manure and compost, but I don't use inorganic fertilizers in my row.

Angie, who is a longtime gardener and member of the master gardeners' program, maintains a plot without furrows and without any soil exposure, using clover in sections where vegetable producing plants and herbs are not growing, and using cover crops in the winter to fix nutrients into the soil an protect soil from erosion. Her garden plot follows the local extension office master gardeners' program guidelines to the smallest detail. Yet, due to larger scale contamination from conventional farms using herbicides and, as she perceived, a lack of clear leadership and communication on the farm, her garden recently (at the time of the present study) experienced a wave of harmful chemical contamination:

> We also got hit with um, some kind of toxin that probably came in with, well did it come in from were trying to figure out, did it come in through the drain? Did it come in with the manure? I think that um, cause we had, um, I at that point we had a garden coordinator that gave us a lot of fresh manure. um, or it could be the mulch. We there, we've learned a lot about um, herbicide, toxic problems. That is why there's no clover here, clover is starting to come back, but there's a slope on the garden because of the flood. Anything that's water soluble is likely to wind up down here pretty well up at that end. And uh, so, but like I say, well that's a learning curve, but a lot of people are having those kinds of problems now. And we need clear leadership that is checking these sources, because they're not being careful. We have to let this patch sit for a long while now (Angie, 9).

Angie pointed to the reality that, increasingly, small organic farmers are experiencing contamination from harmful compounds used in conventional farming through the very water that is designated for traditional farms. While sometimes water may carry harmful compounds from upstream farms (in most cases, water actually helps to dilute the destructive effects of herbicides and pesticides), the source of this contamination is almost never completely clear. In other words, nonpoint source pollution is now, to varying extents, ubiquitous, even on the most careful organic operations.

Angie placed part of the responsibility on the RGCF leadership, arguing that more careful sourcing of organic manure that is not contaminated with high quantities of toxins left over from herbicide and pesticide use (and poisoning in cows and horses) was both a sign of good leadership and a potential solution to the problem. When asked what she was doing immediately to deal with the toxic problems, she stated, "well, we've decided that nothing else other than what we do in this place will go into the garden. If it grows here, it stays here, and we will compost, but extremely carefully. That's it." In this way, the meaningfulness of place for Angie was about developing a knowledge that was as deep and comprehensive as possible concerning the life *within* the garden. While such a practice can certainly mitigate the potential for contamination, it does not account for the inter-relations constituted through waterflows. Regardless of attempts at creating a closed-loop system of growth, decay, nutrients, and growth again, riparian water always connects practices upstream to those downstream.

Angie also shared a perspective that distinguished groundwater from surface water in the discussion of pollution:

> Whatever has been irrigated then goes back into the drain. And contains anything that anybody wants to throw into the drain and there's not enough water in the drain to always really dilute stuff, and not enough water for all our needs. But there is a well, which was, uh, not used for several years because the farm just couldn't get itself together to use it.

As we see here, Angie favored well water as a potential way to mitigate pollution and contamination. First, this marked another example of a form of fragmentation that, I argue, is part of a larger tendency in water discourse to construct boundaries in water flow based on particular scientific measurements. While, at the scale of one farm, these measurements appear to be efforts for conserving water (i.e., keeping more water in the ground, using less water in agricultural operations so that more water can flow downstream), at larger scales, are actually functions of the constructed power[12] to control water provision. In this case, the boundary was between surface water (river and acequia water), which was understood as sparse, unstable, and too polluted, and well water, which was constructed as abundant (or at least more abundant than surface water), stable, or consistent, in availability, and less polluted. Angie also named the farm leadership as primarily responsible for the herbicide contamination, due to a lack of thoroughly checking sources of manure to confirm their organic practices, and argued that "we really should be spending our time trying to get the organic certification back but that doesn't

[12] I use "constructed" here both figuratively and literally. Power is socially and politically constructed through the literal building of infrastructure for water diversion and delivery, and agencies (federal, state, and local) claim ownership of infrastructure, and in so doing, vie for the control of water distribution based on those claims to ownership. Figuratively, power is constructed through the naturalization of fragmented community relationships with water (i.e., Individual water users)

seem to be a priority." In the following section, I look at participants' talk about embodied ecocultural practices and ways of understanding water flows in the acequia system, an ancestral set of waterways, mutual life systems, and the site of struggles for food sovereignty.

Embodiment & Continuity

In this section, I address participant talk that falls on the embodiment side of the dialectic. I look at participant-produced themes about the ecocultural practice of flooding with acequia water. Participants discussed the meaningfulness of acequias as an essential part of the ecology of the valley, including as a shared water system for farming, the extension of wildlife safe havens/corridors into otherwise dangerous urban space, and the continuity of acequias as both ancient, indigenous-led lifeways and present resistance to the commodification and poisoning of shared waterways. After analyzing participant utterances, I show how they demonstrate continuity between participant identities, relationships, actions, emotions, and sense-of-place (See Table 2 on p. 71 for visual summary).

From Fragmentation to Continuity: Toward Embodiment in the Practice of Cultural Flooding

A great deal of the meaning farmers at RGCF (and in New Mexico more widely) associate with water comes from the actual set of practices that make up flood irrigation. In terms of CuDA, when reflecting on flood irrigation, the hub of meaning is composed of talk about the practice and the practices themselves, of opening the flood gates from an acequia, and helping the water to move over fields evenly, both through the use of gravity and an understanding of basic flow dynamics, and developing a relationship of trust with

the water and the community of practice that uses the water. Being, relating, feeling, and dwelling are all radiants when discussing the action of flooding directly as a hub of meaning. These meanings are often implied when discussing practices associated with irrigation, but also emerge explicitly in utterances, sometimes taking the place of acting as the hub of meaning, momentarily.

Participants who exhibited continuity in the way they talk about flooding moved fluidly between multiple radiants of meaning in singular utterances. Participants described flooding historically and as a place-based (dwelling) cultural practice (acting). As part of cultural flooding, participants grounded their identity (being) in symbiotic ties between people, land, water, and other forms of life (relating), and did so partly because of a deep sense of emotional satisfaction that emerged from the way they saw flood water changing everything it touched.

When talking about the embodied practice of cultural flooding (i.e., actually opening the flood gate, working with flows to help them reach plots on the farm, and witnessing the variety of life forms that flock to the flood), participants who previously objectified water began to shift toward more relational conceptualizations. The examples in the next section are accounts of participants' shifting conceptualizations. The first examples deal with two conceptualizations of the concept of "water banking."

"Water Banking" and Shared Water Practices. Participants used the term "water banking" in two different ways. In the first conceptualization, water banking refers to the capacity of the city to determine how and when farms can use water, based on how many times a given farm has flooded that year and the seniority of the water

rights on a given parcel of land. Owen used both conceptualizations when describing water banking:

> We flood, flood irrigate, which means we also work as a water bank for those South of us. So when we flood, we'll lose 7% to evaporation. And then what happens is the water will slowly seep, seep over to the Rio Grande through this ditch. And in about three months after we flood, then they're getting water down South from what we held on to through that water banking. We have city rights. Okay. So the city will move those water rights around depending on what's an emergency. Okay. Shortage situation. We were, we're on a water bank, which means it's that flexible system and that's through the Middle Rio Grande Conservancy [MRGCD] and the city. And then so I call every Friday, Saturday, Sunday, Monday, sometime in that timeframe to ask for water on Tuesdays to see if it's available (Owen).

Brian, echoing Owen, depicted water banking as an essential part of community-based sharing of water along the acequias, representing above and below ground water flows as continuous, and the relational value, as opposed to only technical value, of cultural flooding:

> Yeah. So water is part of it. The watershed. I'm a huge fan of what we're doing already, like furrowed irrigation. And you probably have encountered Sam Fernald's study up in, Alcalde, you know, they show that most of the water, 90ish percent just you lay it on the soil and it goes underground and it comes out month and a half later and flows into the

> river. It's like water banking. We should be so grateful to those Northern farmers for doing that work that allows the water to show up at our place a month and a half later, instead of just being, you know, lost downstream. So…you know, New Mexico is, the tourism industry would crash if we didn't have a flood irrigation furrow irrigation because all of the forests and woodlands around these iconic small farms of New Mexico would just disappear if it was dry.

As opposed to the idealist views in which water and/or human beings are removed from fundamental life relations in order to conceptualize survival, these two participants described a view in which the relations of cultural flooding embody survival. Such embodiment is based continuity between actions, relations, and place: flooding upstream helps those downstream in the watershed, nurturing flood-based forests ensures multispecies survival and sustainable food sources, as well as place-based livelihoods.

Embodiment and Shifting Understanding of Ecocultural Relations. Several participants who became farmers as adults, or who had farmed their whole lives but were new to New Mexico, talked about how, prior to actually engaging in the practice of flood irrigation, they did not understand why flood irrigation was practiced in the desert, considering it wasteful or misinformed. Others described not understanding the mechanics of flood irrigation. Some of these participants had grown up in other places, and others were from New Mexico. Each, at some point, changed their perspective, but to varying degrees. The key moment of change appeared, across the board, to be the first time someone actually engaged in flooding. For example, Robyn, a mid-20s farmer who grew up in Albuquerque, but became a farmer as an adult, said,

> I mean, my first, my first memories of water probably like being really small and swimming in a city swimming pool in terms of like a memory that I think about like water and then, um, like memories sticks out that I mentioned earlier of like driving with my dad and him seeing a field being flooded and him making a comment of being like, Oh, why do they always flood the fields? We are living in a desert. And me being like, Oh yeah, but why? You know, but the comment though, like, why are they, why are they wasting it. It seemed reckless.

Robyn's previous conception of flooding as wasteful and not the best use of water was common among many participants prior to actually engaging in flood irrigation. For example, another young farmer, Annie, made a meta-discursive reflection about widely held perceptions of flooding:

> I never really started thinking about water a ton until I started farming. Many people are like… why are they flooding so much? They're wasting all that water. I think I had that idea that understanding of it too, before I started farming, seeing the fields covered in it. Yeah and I think it still gets a bad rap…It's that like virtual water and why aren't you using all this high tech tech and instead you're just letting most of it evaporate on the open field?

Most participants described a distinct change in their perceptions and understanding of flood irrigation upon actually flooding for the first time. The changes described sometimes represented a fundamental change in understanding the relationship flooding has to other forms of life in the Valley. At other times, participants described a

shift in understanding of one aspect of flood irrigation, such as the flow dynamics of water, participating in a cultural tradition, or a source of economic stimulation through agritourism, but not necessarily a systematic change in how they understood the value of flood irrigation itself. In other words, while some participants described experiencing a fundamental transformation and became advocates of flood irrigation and its relationship to place, ecology, and life, others described learning new information, but did not necessarily talk about a shift in their identity as farmers/irrigators.

For example, Alex discussed how, through the repeated act of opening the flood gates and watching the changes in the water's movement and its reshaping of the land, he developed a new understanding of flow dynamics, and the capacity water has to shape its own path in flood irrigation. Alex also stated that through observing the communication structure of the acequia system as it exists today, he discovered the importance of being diligent and timely with flood water when it is made available, in order to not risk lose the opportunity to irrigate that week:

> I guess one of the big learning curves was as the acequia at first, because like the logic of not being able to use a hose whenever or like a sprinkler system or a drip system – that was hard for me to comprehend. And the comprehension is that you have to have everything in rows at like a certain like two feet to a hundred feet – the biggest thing is that you can't have the rows wider, say like six feet. And the acequia water pressure all depends on like, who has it first, and there's no guarantee how it's going to get from A-to-B, especially when the beds are the height is so high or low, so you gotta make sure it's like a certain height. And the first flow, you have

> to have faith that it will go from A-to-B, and eventually, with more flows, it will carve itself out. And that was like the big thing that I didn't understand. That I don't need to keep reshaping it, that eventually the water will be strong enough at some point, and it will just create its own furoughs. Definitely the water at first, because I didn't know what an acequia was, or you have to open up this pipe – like all of the politics around there, like there's a ditch rider, you only have it from like 5 am to like 9am – so if you don't water with it then, it's gonna be someone else who gets to use it.

Alex's understanding of flood irrigation constituted an example of learning new information, but not necessarily a transformation in his own orientation to flooding. Through the practice and the relationships that surround it, Alex developed an understanding of the political system associated with acequia water – which did not necessarily change his perspective of arguing that people should be appreciative of what they have, nor his understanding of waste as mediated by different forms of irrigation. Furthermore, Alex's understanding of flooding was not necessarily tied to a sense of dwelling nor long-term survival for humans or more-than-humans. However, through the actually practicing flood irrigation, he did develop, at the very least, a sense of respect and trust in the agency that water has within farming practices.

For Robyn, who grew up with the clear assumption that flooding was wasteful, learning about flood irrigation, and particularly engaging in its practice, was transformative for her in terms of her identity as a farmer (being), and meaningful as a historically place-based cultural practice (dwelling) and as a key part of human and more-

than-human relations in the middle Rio Grande Valley. Robyn grew up in New Mexico, but not as a farmer. Her parents gardened, and she learned a bit about water through using the city water and drip irrigation system. However, becoming a "real farmer" in New Mexico, for Robyn, meant, in part, developing an understanding of the historical relationship of farming and flood irrigation in the valley:

> Like here's this program, work with these people from all over the world and figure out how to grow some food and whatever variety works. Um, and at the same time I met my future husband, which was very great that the universe did that cause I don't know how I would have done that job if I hadn't actually started dating a real farmer and learning how to farm like for real. Um, so yeah, that was a pretty like pretty amazing year. Just a lot of um, like my understanding of New Mexico's agriculture was shaped very quickly. Um, just by spending time down in Socoro and being, getting to know our neighbors who are like old time family, chile farmers and hay growers and um, who flood irrigate and have been doing that for a long time and learning more about what that actually means and how that actually links back in with our, like the whole middle Rio Grande Valley and the green belt and migratory birds and like the trails that I love to run on the ditch banks.

Another participant, David (mid 30s, Chicano, male) talked about the change he felt the first time he participated in flooding at the community garden. Engaging in the practice both changed this David's understanding of human' relationships with other

forms of life at the micro level in the moment of actually flood irrigating, as well as at a larger geographical scale in how he understood the whole valley:

> Um, and having the realization of like, the first time I flooded at the community farm was like how did a bunch of people in the community garden out and me and like my, my partner and like with our palas, with our shovels and moving water around. And then, I mean it was just a really cool thing to be like, yeah, we're continuing this tradition. So just thinking about all of those different evolutions…I mean I love, I love flood irrigation now. I love watching the birds come in. I love just, you know, flying in back home if you're away and seeing like the belt of green and knowing that that's like here because we're here and managing the water in this way. Um, I mean it would, it would be there if we were not here as well. And maybe it would be here in a wider way, in a different way, in a much more meandering way. Um, but in terms of like within the city belts of green that are being fed by ditches and by, you know, Cottonwood trees and roots that are reaching deep and having water there because we've moved it there and we've put it there because we need it to be growing food.

In addition to a change in perspective about the value of flood irrigation ("I love flood irrigation now"), David offered a larger critique about how the river and valley might look if people had not affected the landscape so much. Partly this was an exercise in idealistic imagination – it offered an opportunity to consider the deep effects extractive and forms of human action have had on the Rio Grande Valley, and how the river might

be without colonization. On the other hand, the embodiment "within the city belts of green that are being fed by ditches and…Cottonwood trees and roots that are reaching deep and having water there because we've moved it there…because we need it to be growing food" is an understanding of how flooding has maintained continuity with historical mutual life relations despite extractive ecocultural practices.

Annie spoke in a similar way about how the practice of flooding to irrigate her home farm and the community farm made her acutely aware of how life thrives all around the flood. In this utterance, Annie focused on the feeling the immediacy of life when flooding:

> I think I actually really appreciate it now in like a deep internal sense, like the way that this place becomes alive and you can feel it and like this vibrancy, like a rain, the plants literally do, they grow faster, they look healthier. You know, everything just like it's a more, it almost looked glows, you know, way or even with the floodwater like the way the earth sighs at that first flood after a long winter. It really does. It just settles, you know, and you can feel, it almost feels like relief, you know, and you can watch how the water fills all the cracks in the earth and how the first time takes the longest. It's almost like savoring like we've been so thirsty and now we're finally satiated and to how it just gets faster and faster and how you can see how there's a store of water being built. Like there's all of these things that just in the moment are just so incredible, you know.

Annie showed how her experience with flooding enhanced her emotional connection to farming (feeling). She described feeling the immediate aliveness and relief that follows

the flood (“the way that this place becomes alive” and “the way the earth sighs”). She also did not distinguish herself as separate from that life, but rather as part of the relations of feeling before, during, and after the flood (“we've been so thirsty and now we're finally satiated”).

While many participants revealed themselves to be advocates of flood irrigation as a practice, others were critical of the fact that flood irrigation is practiced along with other farm design techniques that, according to said participants, are not making the best use of flood water for soil health. For example, Angie stated,

> I want to see no till everywhere. But with the rows and the furrows too, when you think about it at, at, uh, it's not the best use of water…They say it slows down the water, you know, that's not necessarily a bad thing when they want it, but they just want to get finished and go and do something else. And then you have, you know, the water's going up into the row. Um, there's no cover in the furrows and it's wasting the water. The slower movement of water means that it's going to spend more time in that particular spot of the soil. And the, and that's, that's not a bad thing…I don't want to see any soil…because if you see it you're losing soil, you're not feeding the soil. It gets too hot or too cold and you kill it. All that sort of thing. But that's, and as I say, I kind of figured one person would try, but some of the people here now are not digging, so that’s a start.

For Angie, the key to understanding the benefits of flood irrigation lies in the way water is related to soil, and particularly to how soil should, in Angie’s opinion, be

understood as a living organism, and not simply a medium in which farmers mix the things they want to grow:

> I feel like we've been trained to use soil as a, as just a medium for holding the stuff you buy to put new soil in, instead of thinking about the soil as a living system that needs to be treated like a living system. But like I say, I've, I've had various degrees of success trying to talk to people here (Angie, 20).

In their talk about water, participants described how embodied experiences with flood irrigation shaped and/or transformed their understanding of the historical and present-day ecocultural relations of the Rio Grande Valley. Participants expressed continuity between their senses of self, emotional experiences with other living beings, the possibility for continued practice of long-term agriculture in the Rio Grande Valley, and the life relations that make those practices possible.

Acequia Floodwater, Wildlife Corridors, and the Microclimate. With a few exceptions, nearly all participants conceptualized the relationship between farming via cultural flooding, the health of the surrounding ecosystem, the survival of a variety of mammal, insect, and invertebrate species, and the microbial health of the soil as fundamentally interdependent. In other words, participants saw water as an essential link between all life that dwells around the Rio Grande. It is important to mention that, in the few exceptions to this understanding, participants understood the river's importance to their farming practice as little more than a source of water (for which they were grateful). This minority of participants (who were largely the same participants whose talk exemplified objectification) tended to talk about the surrounding life of the river valley as

an important community and economic resource in terms of its beauty, capacity to bring tourism, and as a refuge for more-than-human life. In other words, they saw the river life system as important for economic stimulation, recreation, and for the survival of *other* forms of life, but not essential for the farming practice (and therefore, not immediately essential for human survival). In this section, I begin by looking at these exceptions, which, while describing embodied experiences and the importance of those experiences to the continuity of life in place, separate human survival from that continuity.

In the following excerpt, Katherine described how the farm draws in a wide variety of animals, but ultimately, are not important to how the farm works:

> Lots of ducks, geese, Sandhills, those Roadrunners. There's at least one pair. We've, I've even seen them schtupping, obviously it's a romantic place. um, I have seen, you know, some voles and, and mice. I don't know if I know the difference between them all, but this was the first place I saw a lot of them in the wild. Um, a couple of squirrels, not very many horses, dogs, people run with their dogs and all that. Um, so yeah, probably pretty much covers it. I'm not, you know, been here at the times when deer might come or something like that. And usually you're in the middle of the day. Um, I certainly think they were here before us. I mean, are they important in how the farm works? No**.** But I think, I think we all have to share this wonderful little dot in the, in the stratosphere with everybody else who's here.

Katherine, in describing embodied experiences with other life on the farm, demonstrated both sides of the idealism-embodiment dialectic. On one hand, she

demonstrated an assumption that the farm should function as a wildlife refuge primarily because it embodies a historical continuity with life in the river valley ("I certainly think they were here before us" and "we all have to share this wonderful little dot in the, in the stratosphere with everybody else who's here"). Katherine saw the farm as an embodiment of the ecocultural premise that humans should consider themselves as one part of a larger system of life. However, in terms of the immediate ecocultural practices that contribute to human survival (i.e., farming, animal husbandry, protecting healthy water sources), the other life brought to the farm flood waters and food sources is not "important to how the farm works…No.") While Katherine showed a sense of historical-ecological continuity through the ethic of humans' obligation to share space with other forms of life, her perspective also demonstrated fragmentation of the interdependence between humans and more-than-human life.

In the following utterance, Alex highlighted the aesthetic importance of the farm, as well as its importance as a spatial way of communicating the presence and immediacy of more-than-human life in an urban space:

> There is no strong delineation between where the Bosque is and where the farm is. Because the same birds will go around it, the same creatures will go, and don't think, oh I'm going to stop here because there is a road or something. Yeah, and it is important. I think it shows that there's more than just people there, I mean, especially when the acequia floods, you get to see a lot of birds there. It brings more attention, you know there's a bunch bird watchers and people who just come down there to see it. Like if it's just a gloomy area, you know, if there was no life at the open space,

> people might as well walk down Central or Lomas. I feel like it's just part of the experience, too, at the farm, or just like the ecological diversity in Albuquerque. Like, without it, I could see it being a bit of a turnoff if it wasn't like that. You know, it's peaceful to see other life going on.

In this utterance, Alex conceptualized the river valley and farm as one place with "no strong delineation between where the Bosque is and where the farm is." He argued that the lack of a constructed boundary is important because other animals see the farm as a safe haven from dangerous roads, and that visually and spatially communicating the presence of other life to people was important in and of itself (in addition to the aesthetic importance of the farm not being "gloomy"). In this utterance Alex did not deem the other life that surrounds and composes the farm as unimportant to the farms' capacity to grow food. However, when compared with his previous utterances that proposed solutions to issues lack malnutrition and hunger that completely remove water and interdependent forms of life from the farming process, this utterance reconstructs the notion the lack of borders separating the farm from the larger river valley are important primarily because of their aesthetic quality.

The following two utterances exemplify participants' perspectives that sensed continuity between the historical, aesthetic, and ethical reasons for the connection of the farm with the bosque, as well as the fundamental interdependence of human survival practices and the life systems upon which those practices depend:

> I mean, just where does our water come from? Yeah. You have the acequia system that brings us water from there. So you get, you know,

everything from those benthic macroinvertebrates that go buried down in there and poop this, you know, and poop and pee and release their nutrients down. And then you have, uh, we, we always get those little crawdads here and there. They're invasive, but it is what it is. But uh, yeah, I, I, I think we so much comes from that river and it's just a stone's throw. I mean, you, you have the waterfowl that rest in the, uh, in the overflow ditch there, and then they go to the, to the, the river a few feet away. Same thing with all the, uh, large, uh, what do they call it? The not the herons. Uh, I could see them, what are they called? The birds. Yeah. There's real big one. The Sandhill cranes. And then they'll go from the fields out to the river, and they all poop and leave nutrients for the plants that feed us (Alejandro).

But yeah, you know, and so when you have so many places that are covered in concrete, they get covered in asphalt. Well, these create microclimates that help cool down the environment. You can drive in an area like this, it's often a degree or two cooler because especially when you have to irrigate, you have the whole land covered in water. It's basically a swamp cooler. Yeah. Then you're allowing more water to permeate underground into the aquifer that way, you know they can't, when it's right 20 feet away from us right off. Yeah. So it's allows for greater permeation of water, eh, for wildlife habitat, and for people to reconnect to the earth and look to see where their food comes from. And I

> think that's the biggest disconnect between, you know, people in wasting food, like you're saying, is when people, the kids don't realize, people don't realize how much energy went in to growing something. So it's easy to throw it away when you have no respect for something, it's easy to get rid of it. So it is areas like this really foster homes for so much different learning, you know, environmental, wildlife, you know, conservation. So many different things can be learned in an area just like this. (David)

These participants demonstrated that the act of flooding is not only about irrigation for agriculture, or even aquifer recharge (although both are essential to long-term survival). Acequias are ways of understanding human action and presence as only one part of a much larger system of life, and of sharing the most fundamental source of life: water. Moreover, these two participants understood past and present life and life processes in and around the river as the source of their capacity to grow food in the valley. That is, they understood the agency for survival as not simply the capacity to move water from point A to point B, but as inextricably tied to all of the life processes in the valley. In the next section, I look at one final set of participant utterances that address critiques of injustices and failures of water and agricultural governance and the farmers are doing to address these issues.

Acequias, Community Connection, and Critiques of Water Governance

In the utterances that follow, participants demonstrated both embodiment and continuity as they shared experiences of conventional farm pollution, ecological and social injustices of predatory water policy, and teaching and organizing to protect acequias. Participants demonstrated continuity between their critiques of water

governance at regional and national scales, and the efforts they are making to amend injustice. Participants' critiques dealt with sources of pollution, as well as the systematic removal of acequia water rights (often by the removal of actual acequia ditches) by the county through infrastructure development, often done in the name of conservation and flood control. However, they also grounded solutions to such problems in the strengthening of their own voices as water protectors through community organizing and education. In so doing, they conceptualized their work as trying to reinvigorate a collective sense of identity and action rooted in interdependence with more-than-human life and continuity with historical struggles for water protection and food sovereignty, at the same time as making specific, concrete policy recommendations.

Water Pollution and Food Safety Policy. Annie made an important critique about how, in an effort to address pollution, illness, and other health hazards caused by large, conventional, monoculture and factory farms, the USDA's Food Safety and Modernization Act (FSMA) has actually created a new challenge and more work for small and medium scale organic farmers:

> I feel like large scale farms have given small scale farms a bad rap. Like this food safety modernization act is so annoying...these farms are not the farms getting people sick, but then now you've placed another barrier on a farmer just trying to get by…like just to prove you're exempt, the amount of work that has to go into that, right? Like how do we stop blaming small scale farmers for the problems that largescale agriculture has created and like understand how to differentiate that and like actually educate people who make those decisions on that?

Annie, demonstrating a trend among a significant number of participants, was not only concerned with the fact that toxins were flowing downstream from farms and industry, but even more that small farms were being subjected to extra scrutiny and labor by federal agencies when the ecological problems for which they are being scrutinized (i.e., water pollution, zoonotic crossover diseases, and pesticide/herbicide poisoning) were created by large scale conventional and organic farming operations. As Guthman (2011) demonstrates, there is no standard organic operation, and as organic farms grow larger and are forced to compete in markets with larger conventional farms, their practices tend to shift, until many are virtually indistinguishable from conventional farms.

However, Annie's understanding was also distinct from that of the several participants who hesitated to assign any responsibility for dangerous compounds in water, but rather condemned the use of that water on their own farms. Annie saw polluted rivers and acequias as both the embodiment of large-scale farming operations (as opposed to idealist normalization of "nonpoint source pollution") and as indicators of larger problems (not just a problem with getting organic certification). The acequias, because of their embeddedness in river life systems, and the open nature of their water to all manner of phenomena, are indicators of ecological health and ecological problems. Moreover, Annie pointed directly to systems that use conventional fertilizer, pesticides, and herbicides as the sources of the problem, and argued these same systems should be held accountable for ensuring clean water in the future, not the farmers who have worked tirelessly to produce the cleanest food they can, while supporting local ecosystems and wildlife.

Alejandro took a perspective similar to Annie, focusing on the sources of dangerous compounds in water:

> I mean, I've been swimming the river a couple times, but, you know, down here, It's not a good idea. They have the, a friend of mine was telling me he worked for, not TriCore but one of the other companies, um, in one of the labs it was, I think it was TriCore and one of the things they had to do was, you know, you have all these, uh, these jars of specimens, you know, everything from an amputated arms, legs, fetus, everything, and they're all in formaldehyde. So how do you neutralize formaldehyde? You put a salt in it and then you pour it down the drain that goes into the river. The solution to pollution is dilution. Right? Yeah. You know until it explodes into fire, you know, there's a lot of lot of concentrated fecal matter down there at this point too. Yeah. So not the greatest thing to be submerged in...You know all the pesticides and herbicides that people from people's farms too.

Alejandro described a view of pollution that named the source, not only the effect. While this may seem obvious—that when water is polluted, the source of the pollution should be discovered and made to change—the reality is that many farmers did not see their agency beyond simply not using the water if it is polluted. Rather, they saw *use* of potentially polluted acequia water as being just as much a failure as the source of that pollution, and even in some cases, that the polluted water was just a reality that they had to deal with that could not be changed. Further, as they saw it, the only plausible change

would be to use well water instead (e.g., Angie mentioned that the farm had failed to "get itself together enough to use the well" that was drilled on the farm).

These utterances were examples of talk from the group of farmers who related directly with a place-based way of knowing water, and had come to understand themselves as part of relations-in-place to the extent of collectively defending water. They pointed directly to sources of pollution as the problem, and through collective educational efforts, as well as political efforts through local and national organizations, are simultaneously organizing to fight for policy to restore the health of river systems. As farmers grapple with how to approach water pollution, the temporal scale from which they imagine the problem of pollution deeply influences larger meanings about water practices (e.g., the acequia is polluted *now*, so we need to use well water vs. acequias are ancient human and more-than-human ecological relationships that act as indicators of larger ecological health or distress).

Injustice and Loss, Regeneration and Catharsis. Several native New Mexican participants recalled the moment in their lives or elder neighbors' lives when the county filled in their acequias without prior notification. Younger participants discussed hearing similar stories from elders in their communities, and the destructive impact it has had on their communities. One participant recounted talking to a number of neighbors near both their South Valley home and farm as well as RGCF in the North Valley:

> You know yeah, like talking to old neighbors. It was astonishing to hear them talk about how yeah, they used to flood and then one day their little channel was just filled in. They didn't get any notice. County offered to dig them a well in exchange, but they didn't even have any say in the

> matter. It was just one day. Oh yeah. You know back then that yard, that's where the channel used to go. They would go and show me and stuff and then be like, then it was taken out of our hands. Yeah, that's awful. I think that's, that's like, I'm like that. We need some reparations for that. You know? Like what the hell was that going on? It's like how we've been divided…Especially in a place where this is literally the only reason why we all grow food here, thanks to the acequia system and the river. Literally why this is one of the longest continually inhabited places in North America. And it was just taken away from, you know, traditionally people who've lived here for just as long.

Robyn's remarks echoed Annie's, and addressed the meaningfulness of the ditches as a community resource for communication and community building:

> Because I mean the ditches are, like, the life line throughout all of New Mexico and the middle of Rio Grande and in the North and the South as well, um, they are feeding a lot more than just the fields there. Like I mentioned earlier, like feeding habitat for wildlife as well as feeding habitat for connection with like nature and not just the city, um, in areas like Albuquerque, Santa Fe, Las Cruses, but, um, in rural communities, they're really what tie tiny neighbors together. And you know, the acequia association having the mayordomo doing cleaning of the acequias and all of that, keeping on a close hold of old, old traditions and um, yeah, like old practices that, that really do like refill our aquifers and help keep our river running. They help keep water in the ground in New Mexico and not

like all running down the river to Texas. They're so wasteful with sprinkler systems down there. And you know, it's devastating to hear my older neighbors talk about how the city came in and just took their ditches away.

Manuel, a farmer in his 70s whose land has been in his family for 14 generations, recalled the location of the acequia when he was younger:

This acequia, the arenal, used to be half-a-mile further that way. I remember when the state engineer came in and filled it in completely, and then they redirected the river. They were claiming it was because of flooding, and there were floods, but that was normal. Within a few years, they had built this entire new embankment, and the whole housing development back here, all of these houses pulling water directly from the aquifer. But our farm used to be 10 times the size it is now, because it used to go all the way to where the acequia used to be.

Yeah. You know, I feel like in Albuquerque we're disconnected from the acequia community a little bit more than in other parts of the state, it seems just cause like, I think, you know, like the, what the conservancy whatever pretty much assumes the role of what would be like a democratically elected set of folks who's like held to manage everything. So really like, Like I don't, you know, like we have a ditch rider. Through the conservancy. Our ditch rider,[13] Anthony, who I set up our times to

[13] "Ditch riders" are part of the present-day acequia system in Albuquerque, and work for the Middle Rio Grande Conservancy District (MRGCD). They are responsible for

> water, you know, and who makes sure that our contract is signed to get it and that we're paid up for it. Right. But like really there isn't much of a connection encouraged it feels to the acequia like other than that, okay, you know, I'm just supposed to sign this contract, talk to Anthony, coordinate and then just like water when I need to and then turn it off. Whereas people who live in like Northern New Mexico, there is very much like a much larger sense of like obligation and responsibility to the acequia.

The MRGCD (the government body now responsible for physical distribution of acequia water in the Valley, as well as the previously discussed "water bank" system) has often argued that one of the benefits that they provide to acequia is that community members no longer have to do the work to clean out and prepare the acequias every year to make sure they flow smoothly to the farms along the ditches, are not spilling water, and properly return water flow to the river. However, as participants and scholars (Arellano, 2014; Matthews, 2018; Rivera, 1998) have abundantly demonstrated, the annual acequia cleaning was (and still is in Northern New Mexico acequia communities) both a celebratory and vital community process that tied neighbors together, encouraged collective support for raising children, and encouraged networking for collective problem solving. In addition, participants understood the states' forced lining of acequias with concrete in the name of flood control and efficiency as an utter contradiction. A significant amount water that flows through earth-lined acequias penetrates the soil and

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regularly observing, contracting repairs to, and distributing water to farmers and land owners who have rights along the acequias.

constantly recharges shallow aquifers, sending return flows of water back to the river, which continue to support life along the river banks, as well as other farms downstream (Fernald, Baker, & Guldan, 2007; Fernald et al., 2012).

Annie reflected on changing attitudes in the community surrounding cleaning out the acequias that are still unlined, as well as the ongoing effort to restore larger community participation in these collective ecocultural traditions:

> I mean like we went out there yesterday to clean the acequia of trash and stuff and we have people asking like, why did you bother to do that? The Conservancy will do it. And I'm like, they just go around and they, and they flushed it. They just flushed the trash downstream. But it's that sense of obligation that we have to it that like made us go out there and clean it up. That was not assigned, that was not discussed, that's not needed to be done, quote unquote, you know, like I feel like they tried to take it from us, but like we impart our own importance onto it and want to give it the thanks we do. And there are like acequia blessing ceremonies and stuff that happened here in the spring, you know, that I'm very grateful for and that really like impart that kind of like historical significance and that connection to like past generations and how we're like the current generation bringing it into the future.

Annie continued, talking about how collectively, farmers are trying to rebuild wider community participation in acequia cleaning, ceremony, and celebration:

> We are definitely trying to take it back. You know, like we did go out there and clean the acequia, even though we didn't have to. And we're

> making it publicly known through like social media. And just talking about it and stuff. Right. That that was something important for us to do. People do ask about it. Why, you know, so that feels powerful. Like anytime we have all the school groups out here and stuff, we try to talk about what an intimate relationship we have with water still and how we utilize it on a farm while also utilizing, yes, you want to ask about, okay, yes, we'll explain these more modern techniques that we use and the well and everything. But really always try to redirect to like what we're doing here. You know, thanks to [my mentor] now every year we do a blue corn field and exhibit that and talk about that and talk about how people used to grow food, how people still grow food and how if we want to keep making it here, we're going to need to remember how to keep growing this food this way.

Part of the continuity in Annie's perspective came from her understanding that the current governance is not based on building community participation, and so community members have to "take it back" themselves. Annie expressed how the communicative action of teaching about "intimate relationships we have with water still" and holding ceremonies and community events to give thanks and gratitude to the river system, the acequias, and the life they support provide emotional and relational connection (and continuity) with many centuries of people surviving and thriving in the desert. Robyn echoed Annie's sentiments, and added the notion that as more people begin to regenerate flooding practices and place-based farming, that their community relationships are more

than just emotional and historical ties, but also provide an embodied way of challenging the ubiquity of capitalism and destructive legacies of colonialism:

> I mean in the agricultural world, in general, in New Mexico, I mean New Mexico in general we're a big state with like not that many people and a really strong sense of place and like community just in the neighborhood of like kids time...And like for the ditches, like we need to go clean out the ditch, we need to share water, we have limited resources and there's struggles and you know, not rosy things that come with that too. But at the, at the root of it, it's like we're all living in a place with limited resources and are kind of dependent on one another to get the jobs done. Yeah. And I feel like that has just like translated in, in all of those communities and just people wanting to see good things happen and wanting to support, even if it's like, Oh, you're also farming in competition, but it's, you know, but it's not because it's were all on the same team competing against like a much larger side of things aka capitalism, aka colonialism.

Participants' remarks analyzed in this section demonstrated an essential and historical set of ecocultural meanings about water within the acequia community. These meanings are grounded in the place-based historical and present-day practice of maintaining acequias as water shareways, source of mutual survival., Additionally, for more than 150 years now, acequias have been sites of symbolic and material fights to protect water and place-based ways of relating from constant attempts of white, colonial, capitalist water governance to distort and subsume place-based ways of being into profit

structures and destroy Indigenous sovereignty. Participants demonstrated that such resistance is inextricable from the practices of flooding and traditional farming, because these practices strengthen the survival capacity of communities and biosystems along the river valley. As Annie noted,

> If we do not stand up and fight for this, who will? We can talk all day long about how great organic food is, but until you put your body and mind to work for this way of being, what are you actually doing? And we also need the farm adjacent work too. Fight for policies to keep the food that's grown in New Mexico in New Mexico and the water that allows us to do that keeping it here to do its thing too.

Summary of Idealism vs. Embodiment Dialectic

In the second half of this chapter, I analyzed participants' talk about water, particularly as it related to the understanding of both problems and solutions with water in farming practices, and the meaningfulness of the ecocultural practice of acequia flooding, and the communities that surrounds that practice. Participant talk demonstrated both explicit and implied ecocultural premises and meanings they associate with water. I looked at several themes that emerged in participants' initial talk about water, and how participants, through those themes, constructed meaning about self, relations, actions, emotions, and place. I argue that their meanings are organized, in part, by a dialectical cultural discourse of idealism vs. embodiment. Here, I summarize that discourse through individual tensions in the 5 hubs of CuDA. (See Table 2 for a visual summary.)

RQ1: (Core Ecocultural Meanings): Identity/Being, Relating, Acting, Feeling, & Dwelling

RQ1: What core ecocultural meanings compose RGCF farmers' talk about water in their daily lives and farming practices?

On the idealism side of the spectrum, participants produced both explicit and implicit meaning regarding being, relating, and acting. Similar to utterances exhibiting objectification, participants on the idealism side of the dialectic understood identity, in part, in terms of individual users, and abstract conceptualizations of people as units-of-water/capita. The nuance of idealism, however, is in the secondary identity implied by participants' proposed solutions to ecological problems. For example, speaking through the hub of acting, a small minority (2) of participants argued that significantly decreasing the population through "drastic measures" was the only way to solve the issues of drought, pollution, and the overall pressure on "water resources."

As seen through this lens, there are two possible identities. The first is the individual, average water user. By arguing that decreasing the number of people using water is the only way to solve issues of drought, it is implied that differences in water practices are mostly ineffective at creating any meaningful change in overall ecological problems (regardless of whether those are individual, group, or cultural practices). Therefore, through this idealist view, the answer is to drastically reduce the number of individual water users. The logical implication of this idealism is that some people continue to be water users and others cease being water users. In other words, pragmatically, many people would be either forcibly removed from the Southwest, or government would enforce limits on "amount of people being born," as one participant suggested. Aside from the fact that this argument is bleak at best to imagine, it implies a

basic fragmentation within the radiant of identity (radiant since the meaning is implied), as well as between the hubs of relating, acting, and being.

Another small minority (three) of participants implied an identity of "savior" or "saving the world" through idealized solutions to drought. These participants described their understanding of the best use of water in farming practices as whatever would "save the world" because "people were suffering." Participants suggested the use of technologies like hydroponics in order to drastically reduce the quantity of water used for growing food. They also suggested that, while growing food in a field was aesthetically and emotionally pleasing, it was largely unnecessary to grow food in soil. Fragmentation occurred here between acting and relating.

This notion implies that in the act of flooding a farm, the only living beings that are relevant or important are the specific organisms that humans intend to eat, and humans themselves. To be clear, the use of hydroponics for getting food to people in crisis—if it works and saves water—should be encouraged. However, fragmentation occurs here when such technologies are used to argue that the basic relationships upon which all life depends (e.g., relations between many different animal, plant, and fungi species that make for long-term healthy soil, balance that brings stability to pollinating insects, the availability of wildlife corridors and food destinations for migrating animals, etc.) are no longer necessary.

A similar fragmentation occurred between emotion and action when participants discussed feeling anxiety, guilt, and frustration about potential pollution in the acequia water that floods the farm because it did not fit with participants conceptualization of organic identity. Several participants responded to the issue of pollution by arguing the

leadership of the farm needed to figure out how to renew their organic certification, and if that meant only using well water, then the organic certification should be prioritized. The fragmentation here lies in how participants' identity is grounded in the idealism of the organic label more so than in determining and addressing the primary sources of pollution. A similar fragmentation occurred between emotion and action when participants discussed feeling anxiety, guilt, and frustration about potential pollution in the acequia water that floods the farm because it did not fit with participants' conceptualization of organic identity. Several participants responded to the issue of pollution by arguing the leadership of the farm needed to figure out how to renew their organic certification, and if that meant only using well water, then the organic certification should be prioritized. The fragmentation here lies in how participants' identity is grounded in the idealism of the organic label more so than in determining the primary sources of pollution.

Again, both organic certification and working for cleaner waterways should be encouraged; however, the fragmentation here lies in the fact that nothing about the organic certification process, as is it exists today, can meaningfully address the sources of pollution in water caused by large scale conventional farms upstream. Such changes require, as farmers on the embodiment pole of the dialectic describe, concerted political action that involves solidarity between all kinds of farmers, as well as "farm adjacent" workers, as one participant states.

On the embodiment side of the spectrum, participants conceptualized their relations with water and waterways as the basis of their existence, health, and livelihoods. They also saw a direct relationship between the health and continuity of the river life

system, the ecocultural history of relations-in-place in the valley (Milstein et al., 2011), and the possibility for human and more-than-human survival and thrival in the future. They described the actions of flooding, caring for acequias, and renewing community involvement in these practices as a continuation of ancient relations with waterways, as well as part of an embodied fight to protect those waterways from destructive and extractive development.

These participants addressed several of the same issues as participants on the fragmentation side of the spectrum, but produced different arguments about the relationship between identity, action, emotion, and place. First, participants argued that in terms of pollution and drought, of course technologies that help with these issues should be incorporated into farming practices, but only insofar as they do not interrupt the fundamental continuity of life relations, especially those that directly and indirectly affect soil health. Moreover, the sense of frustration and loss that these participants described did not lead them to deprecating farm management, per se, but rather, the cultural, economic, and political systems that enable wide spread pollution of waterways. They saw acequias as delicate indicators of larger anthropogenic ecological problems. Further, as opposed to making idealistic arguments about population control and technological magic bullets, these participants talked about how leadership needed to be pressured to both limit the kinds of industries they invite to the valley, as well as create incentives for farmers to transition their farms to work directly with the ecology of the desert. These point to a fundamental difference across the dialectic in understandings of self, other, the relationship between emotion and action, and the importance of place.

RQ2 (Dominant vs Place-based Discourses): Idealism and Fragmentation, Embodiment and Continuity

RQ2: How does RGFC farmers' talk relate to dominant and place-based discourses about water?

In the idealism—embodiment dialectic, participants' utterances demonstrate both influence by dominant discourses about water as well as place-based, resistant discourses. Idealist utterances reconstruct people as largely individual water users, or in extreme circumstances, as units of use that are disposable, to an undefined extant, in order to put less pressure on the overall water resources. These discourses are dangerous not only because they reduce the complex basis of life to units of use/capita, but because population control arguments have been shown to simultaneously mask and support racist and genocidal practices to indigenous people on indigenous land. While the participants in the present study are certainly not implying they agree with such practices, they do show a deep fragmentation in their understanding of relationship between the causes of anthropogenic ecological issues and just, equitable solutions to those problems. In addition, they also reconstruct the dominant discourse of technocratic solutions to complex ecocultural problems.

Participants who focused on organic identity and certification as a primary response to their frustrations about pollution, I argue, produced talk that exhibited aspects of both embodiment and idealism. That is, in developing frustrations about pollution that directly affected life in the valley, they expressed awareness of larger ecocultural problems that their organization could have a part in addressing, showing continuity between self, other, and the potential for better human-more-than-human relations.

However, in depending purely on institutionalized signification of organic ideals as a solution to larger ecocultural issues, they obscure routes to solidarity with other farmers, people, and life systems directly experiencing the effects of agribusiness pollution.

Participants on the embodiment side of the spectrum showed continuity with place-based discourses, as well as place-based solutions to ecological issues. They point to the important reality that place-based farmers can and do help create continuity between their practices and the communities where they farm, including continuing the passing on of mutualist ways of understanding self and other to children. Particularly of note is the way in which these practices embody an understanding of water as having its own agency to draw all forms of life into its flows.

Farmers on the embodiment side of the dialectic also acknowledge that there are no quick and easy ways of solving issues like drought, pollution, and climate disruption. Rather, they argue that place-based farming practices that work with water in ways that support, rather than degrade, local life systems, as well as mutualist community relations for renewing these waterways, are one part of what is needed for meaningful, systematic ecocultural change. The acknowledgment of the both the power of their own voices, but also the crucial need for solidarity with other community voices to make real change, is essential – it shows the recognition and embodiment of concrete power, as opposed to idealist technological or identity-negating (i.e., population control) fixes for systemic and relationally constructed problems.

Chapter Summary

In Chapter 4, I demonstrated how participants' talk about water relations is organized by two dialectics that exemplify a primary ecocultural tension between

fragmentation and continuity. The two dialectics—objectification vs. relationality and idealism vs. embodiment—are cultural discourses that guide participants' talk and understanding about water. Using the framework of CuDA, I showed how these two dialectics shape participants' meanings about self, relations, actions, feelings, and place, all in the context of water practices in their homes and at RGCF. I also showed how, through connections with larger extant ecocultural water discourses, both dominant and place-based, participants make explicit and implicit arguments about the place of humanity in the biosphere, as well as the exemplify the possibilities and pitfalls of various understandings of the causes of and solutions to ecological problems. I highlighted a number of topics participants deemed as the most important and showed how, in each of these topics, two principal groups of participants, one grounded in technical discourses and one grounded in place-based ecocultural relations in New Mexico, exhibited tension between objectification and relationality, and idealism and embodiment for each of the five hubs of meaning in the CuDA framework. I also demonstrated how the two dialectics are related to the primary tension between fragmentation and continuity, with objectification and idealism exhibiting fragmentation between the five hubs of meaning, and relationality and embodiment exhibiting continuity between the hubs. I now move on to the final chapter, in which I articulate conclusions, implications, and plans for future research.

Chapter 5: Discussion and Conclusions

In this chapter, I first summarize of the findings of the analysis in chapter 4. I then discuss my own interpretations of the importance of the present study. I then move to a discussion of the study's contribution to literature in Environmental Communication and Political Ecology. Finally, I discuss the implications of the present study for future research, as well as the limitations of the present study, and offer a few suggestions for addressing those limitations in future research design.

Summary of Findings

In this study, I interviewed farmers about their experiences with water both at home and on the farm, and within their immediate networks (i.e., family, friends, work), in order to answer the following two research questions:

RQ1: What core ecocultural meanings compose RGCF farmers' talk about water in their daily lives and farming practices?

RQ2: How does RGFC farmers' talk relate to dominant and place-based discourses about water?

Dialectics, Fragmentation, and Continuity in Ecocultural Discourses on Water

In this study, I interviewed farmers who are current and past members of the Rio Grande Community Farm in Albuquerque, NM, about their understanding of water relations and practices at home and on the farm. My interviews and data analysis using cultural discourse analysis (CuDA) demonstrate that as participants talked about water, they engaged with and reproduced multiple, often contradictory understandings of human and more-than-human relations in the biosphere. Their talk was embedded within two dialectics—objectification vs. relationality and idealism vs. embodiment—that, on the

whole, demonstrated a primary tension between ecocultural fragmentation and ecocultural continuity. That is, farmers whose talk reflected the first poles of the two dialectics (objectification and idealism) expressed largely disconnected and contradictory meanings about their own identities, and about their understanding of relationships between humans and the more-than-human world, as well as contradictions between meanings about emotion, action, and place. On the other hand, farmers whose conceptualizations were shaped by the second two poles (relationality and embodiment) expressed continuity in their understandings between sense-of-self, human and more-than-human relations, and the ways they described emotion leading to action, all of these being guided by a sense of historical continuity with relations-in-place (Milstein et al., 2011).

Fragmentation in the Five Hubs

In CuDA, researchers analyzing meaning from people's talk through five different hubs and radiants of meaning: being, relating, acting, feeling, and dwelling. When participant talk was directly and explicitly associated with being or identity, for example, being functions as a hub. In other cases, if being was implied, it functions as a radiant. In this way, participant talk may explicitly discuss the way the feel about and know a practice (hubs of feeling and acting), but in so doing, they may also say something implicit about their own identity and relationships with others (radiants of being and relating). I know turn to show these five hubs relate to the primary tension between ecocultural fragmentation and continuity in the present study.

Looking through the lens of fragmentation, participants expressed core ecocultural notions, both explicitly and implicitly, about their understandings of self and

other, both in terms of humans and more-than-humans. Through talk founded on the concept of objectification, participants constructed identities as individual, average water users. In participants' talk concerning the first hub (being), the identity of the individual, average water user was implied (CuDA radiant) through the objectification of water as an inert quantity with a singular value, measured in terms of units of water per capita. This conceptualization reduces the complex interactions of ecological systems, and multiple forms of life that make up waterways, to a simple relationship of "user" and "used." In other words, by objectifying water as a limited quantity and object without agency or other purpose apart from serving human needs, participants also reduce themselves to the abstract identity of a standardized individual user, which is only meaningful in terms of quantity of water used per capita. The process of objectification is, therefore, a process of fragmentation, in which complex relations between complex beings and life systems are reduced to fragments of their selves, and their relations reduced to extraction and consumption. Furthermore, this process of fragmentation is not limited to individual relations between people and water—in objectifying themselves, individuals also objectify other humans and more-than-humans, as well as practices, as simple quantities of consumption (i.e., other people, animals, plants, practices, and relations are primarily understood not in terms of their part in a larger system, but only in terms of how they affect the abstract whole of water that they perceive as available). This is further a process of fragmentation in that people (as well as organizations and institutions shaped by discourses of objectification) draw arbitrary symbolic and material boundaries between different manifestations of water flows (e.g., between streams, homes, taps, sewers, soil, aquifers, wells, plant and animal bodies).

On the relationality side of the dialectic, participants understood their identities as inextricably tied to the life and health of waterways. These participants argued that it was both their cultural and ecological duty to protect waterways, and that water should be shared by all forms of life, directly contradicting the commodity way of knowing water. These participants understood their relationship with water as one of shared vitality with multiple species along and in waterways, and in seeing themselves first as one type of living beings among many types, showed a sense of self primarily understood as belonging-in-place, and drawing life and sense of purpose from the water and acequia system.

Similar to the individuals whose utterances exhibited objectification, participants on the idealism side of the dialectic understood identity, in part, in terms of individual users, and abstract conceptualizations of people as units-of-water per capita. Some participants argued that significantly decreasing the population through “drastic measures" was the only way to solve the issues of drought, pollution, and the overall pressure on “water resources.” Through this lens, in terms of humans, self and other are constructed as individual water users, but with the quite dangerous implication that some people’s lives should continue as they are, while others’ lives are disrupted in order to put less pressure on water resources. This fragmentation is a disconnection between self and other in both human-human relations and human-more-than-human relations. That is, people who argue for population decrease and control generally do not volunteer to leave their homes and move to a place with more water. (Similarly, I have never heard anyone who argued for population control volunteer to be one of the brave souls who would be sacrificed for the greater good!) Moreover, this fragmentation disconnects action and

from sense-of-self and relations. That is, it does not allow for any understanding of human action as contributing to regeneration of life in the biosphere – humans are constructed only as parasites on an idealized nature that would be better off without them (or with many fewer), which also resonates in the destructive cycle of guilt and convenience.

A similar fragmentation occurred between emotion and action when participants discussed feeling anxiety, guilt, and frustration about potential pollution in the acequia water that floods the farm because it did not fit with participants' conceptualization of organic identity. Several participants responded to the issue of pollution by arguing that the leadership of the farm needed to figure out how to renew their organic certification, and if that meant only using well water, then the organic certification should be prioritized. The fragmentation here lies in how participants' identity is grounded in the idealism of the organic label more so than in determining and addressing the primary sources of pollution. In the following section, I recap meanings that demonstrate continuity and how they interact with extant discourses on water.

Continuity in the Five Hubs

On the relationality side of the spectrum, participant-produced meanings surrounding acting and feeling involved conceptualizations of shared agency, and in several cases, participants conceptualized waterways as having their own agency to create and destroy, as well as draw multiple forms of life into their flows. Relationally-oriented conceptualizations depicted water as the source of all life, and as the historical and present-day connection between Indigenous participants' ancestors (and for all participants on this side of the dialectic, non-Indigenous participants and Indigenous

participants alike, the connection to practices of protecting the continuity of those ancestral relations). However, on the objectification side of the dialectic, participants described feeling a perpetual cycle of guilt and convenient action that did not resolve, but rather, reconstructed guilt, relationally oriented participants described feeling gratitude, respect, and connection that were consistently reconstructed through caring for and protecting the life of waterways. This is not to say that relationally-oriented participants did not also feel guilt, anxiety, and/or loss in the wake of destructive and extractive dominant water practices, but rather that engaging in relational practices with water has reshaped and expanded their emotional capacity in relation to more-than-human life.

On the embodiment side of the spectrum, participants conceptualized their relations with water and waterways as the basis of their existence, health, and livelihoods. They also saw a direct relationship between the health and continuity of the river life system, the ecocultural history of relations-in-place in the valley (Milstein et al., 2011), and the possibility for human and more-than-human survival and thrival in the future. They described the actions of flooding, caring for acequias, and renewing community involvement in these practices as a continuation of ancient relations with waterways, as well as part of an embodied fight to protect those waterways from destructive and extractive development.

These participants addressed several of the same issues as participants on the fragmentation side of the spectrum, but produced different arguments about the relationship between identity, action, emotion, and place. First, participants argued that in terms of pollution and drought, of course technologies that help with these issues should be incorporated into farming practices, but only insofar as they do not interrupt the

fundamental continuity of life relations, especially those that directly and indirectly affect soil health. Moreover, the sense of frustration and loss that these participants described did not lead them to deprecating farm management, *per se*, but rather, the cultural, economic, and political systems that enable wide spread pollution of waterways. They saw acequias as delicate indicators of larger anthropogenic ecological problems. Moreover, as opposed to making idealistic arguments about population control and technological magic bullets, these participants talked about how leadership needed to be pressured to both limit the kinds of industries they invite to the valley, as well as create incentives for farmers to transition their farms to work directly with the ecology of the desert. These pointed to a fundamental difference across the dialectic in understandings of self, other, the relationship between emotion and action, and the importance of place.

In terms of dominant conceptualizations, when participants talked about water use in their own homes, almost all were influenced by discourses of conservation through individual action. In the discourse of individual conservation, individual actions such as installing low-flow toilets, grey water systems, taking short showers, and shutting off water during all nonessential moments in hygiene activities took precedence over and obscured the need for larger societal and structural action. In other words, leadership and extractive and polluting industry owners passed along the responsibility for addressing ecological crises such as drought and pollution to individual people and households, and that transfer of responsibility was normalized through the conceptualizations that objectifying people and water in a relationship of "user-used."

Participants that leaned toward relational conceptualizations of water practices responded to the contradiction of the user-used relationship by describing a deep

continuity between their senses-of-self and their concept of water as a living being (including both constructed identity as water protectors and the physical immediacy of their bodies being mostly water). Moreover, this relationality pervaded their conceptualizations of action, emotion, and place. Despite the prevalence of dominant product and commodity ways of knowing water that fragment water and communities from their historical ecological and cultural relations with place, these participants still understood the relations around the river as the true source of life in the valley. In doing so, they described feeling a sense of respect and gratitude for being able to share in the mutual vitality of the river and acequia waterways, as well as a sense of purpose to protect those waterways. On the far end of the relationality pole, participants rejected the feeling of guilt directly as a function of dominant ways of knowing water as a product and commodity, and directed their emotional energy toward farming for mutual survival and thrival.

Participants on the embodiment side of the spectrum showed continuity with place-based discourses, as well as place-based solutions to ecological issues. They pointed to the important reality that place-based farmers can and do help create continuity between their practices and the communities where they farm, including continuing the passing on of mutualist ways of understanding self and other to children. Particularly of note is the way in which these practices embodied an understanding of water as having its own agency to draw all forms of life into its flows.

Farmers on the embodiment side of the dialectic also acknowledged that there are no quick and easy ways of solving issues like drought, pollution, and climate disruption. Rather, they argued that place-based farming practices that work with water in ways that

support, rather than degrade, local life systems, as well as mutualist community relations for renewing these waterways, are one part of what is needed for meaningful, systematic ecocultural change. They acknowledged that both the power of their own voices and the crucial need for solidarity with other community voices to make real change, are essential – they showed the recognition and embodiment of concrete power, as opposed to idealist technological or identity-negating (i.e., population control) fixes for systemic and relationally constructed problems.

Importance of the Present Study

This study is important for a number of reasons. First, it offers a nuanced view of how individuals drawn to sustainability-oriented organizations and work are both influenced by and reproduce multiple, contradictory meanings about their work and its part in building a future of survival. Despite the organization's expressed mission, in addition to trying to create more food security for at-risk communities, of supporting local wildlife as a refuge, participants in the present study showed significant variation in how they understood those relationships. Some saw health, life, and continuity of the river system as the fundamental basis of all life and survival, while others saw survival as a matter of technological innovation and drastic and inevitably violent but necessary actions of population control. In so doing, many of my participants reconstructed arbitrary boundaries between water flows that, whether intentionally or not, reified both the view that humans are separate from and dominant over other forms of life and the normalization of forms of water governance based on objectification and commodification of water.

By metaphorically (and literally) isolating water within given boundaries, albeit arbitrary, participants on the fragmentation side of the spectrum played into the dominant discourse that conceptualizes water as property, and normalizes governance based on technology. As scholars (e.g., Mancilla-Garcia, 2015) demonstrate, the power to maintain that water as property controlled by the state is manifested through the state's and specific municipalities' capacity to control flows through various technologies.

I do not intend this argument to be anti-technological – such arguments are idealist and dangerous. Particularly during our age of rampant pollution and climate disruption, we need technologies that allow us to be as careful as possible in all of the spaces in which we engage with water. We need technologies that get safe drinking water to homes, reduce and stop flows of harmful compounds into streams and aquifers, and designers who consider how flooding or other methods of getting water to agriculture shape and might work alongside the more-than-human life of river systems and watersheds, and scale up and implement technologies that process human fecal matter back into soil as opposed to chemically inoculating it and diluting it with water.

The issue here, however, is not the need for technology, but rather the way in which fragmented understandings take artificial boundaries (and the institutions of governance that control them) for granted. Rather, the question is whether the governance that is inscribed in different spaces is actually working toward multispecies survival and thriving. But the tendency of arbitrary boundaries in water flows to be guided by (private) property logics reifies governance guided primarily by product and commodity ways of knowing water—such ways of knowing water are, in and of themselves fragmented, extractive, and destructive. Therefore, members of sustainability-oriented organizations

have to assess how their missions, strategies, plans for future work, and overall educational philosophies are potentially influenced by dominant and place-based discourses. In so doing, they can shift toward embodied strategies, as opposed to idealistic, quick technological and economic solutions.

Another important implication of the present study is in the fragmentation that lies in how some participants' identity is grounded in the idealism of the organic label more than in determining and politically addressing primary sources of pollution. Again, both organic certification and working for cleaner waterways should be encouraged, but the fragmentation here lies in the fact that nothing about the organic certification process, as is it exists today, can address systemic issues of pollution in water caused by large scale conventional farms. Such changes require, I argue, the grounding of protection of waterways in collective political action to force changes in how humans engage with food and water. While farmers cannot be expected to carry the burden of this kind of organizing, they do have the opportunity, especially in education-based organizations like RGCF, and the capacity to engage in ecocultural education that makes these fragmentations visible, and offer concrete, embodied actions that work toward the larger shifts they aim to create in society.

My study, as one of my participants noted, can be considered a form of farm-adjacent work, as well as a call for communities to take up farm-adjacent work. "Farm-adjacency" is a concept within local activist communities that refers to the work beyond the farm that makes restorative farming possible logistically, culturally, and economically. This concept might include everything from people practicing reclamation composting and providing to farms, CSA participants, community volunteers, activists

lobbying for farm workers' rights and livelihood, schools that partner with community gardens to create farm-based curricula, programs that offer grant funding for sustainable agricultural development (e.g., the new Healthy Soils program in New Mexico), people who regularly purchase from local growers, restaurants that source from local growers, and commercial kitchens that offer space for local growers to produce value-added products to sell at farmers' markets. My study demonstrates specific forms of work for which farmers need greater community support. Despite disagreements between participants regarding some methods (e.g., the exposure of soil versus constant, year-round cover and no tilling for soil regeneration), the place-based farming practices in this study are already doing a great deal of the ecological work necessary for building food systems that are healthy, have an extremely low (or negative) carbon footprint, and are working with water in ways that regenerate riparian wildlife in the high desert climate of the Rio Grande Valley.

However, the multiple and contradictory (and often highly inaccurate) discourses about what has historically caused drought and pollution, as well as the solutions to those issues, put regenerative farmers in a precarious place. Since their work depends upon the place-based sharing of water, they directly contradict the validity of extractive water governance. Farm-adjacent work, then, must involve the cultural work necessary to rearticulate values in leadership. I argue that such work begins in the articulation of mutualist community-based networks that support farmers' livelihoods and the ecological restorative practice of flooding over profit-driven solutions. Protecting such farmers means protecting their livelihoods, which must also include policy work that offers incentives for purchasing locally produced food for markets, restaurants, and stores, as

opposed to the current system of exporting the vast majority of what is grown in New Mexico and important the vast majority of what people eat. Furthermore, farm-adjacent work must involve the political work to ban extractive industries and disrupt extractive development models, as well as critically deconstructing taken for granted models about water use that see all forms of water use as the same, and use that abstraction to uphold extractive governance.

Acequia farmers produce discourse marked by ecocultural dialectics that present contradictions between, on one hand, scientific and technical ways of knowing water, place, and identity, and on the other, place-based ways of knowing. Participants create meaning grounded in the practice of helping biodiverse and complex life to survive and flourish in the Valley, in contradiction to the dominant conceptions of self and relations based on isolated measurement and centralized expertise deeply embedded within capitalist and colonialist logic. The dialectics that emerge from participants' talk help to give nuance to the meaningfulness of situated human relations with water.

Another important implication of the present study is that organizations that are attempting to both educate and change the food landscape of entire communities must expect that they will encounter a wide variety of understanding concerning human relations with both water and other forms of life. As members work toward developing new approaches to teaching ecological, scientific, and cultural sustainability through the farm, incorporating curriculum that helps new farmers to simultaneously understand and engage in critique of how their own ecocultural identities, relations, and actions are implicated in destructive patterns at larger scales would not only help support a stable

mission and vision for the organization, but also take a radical, transformative, justice-oriented, and an historically-informed approach to multispecies survival in the long run.

I argue that another important result of the present study emerges from the differences in how farms relate emotion and action. One possible explanation for the prevalence of highly idealistic, technologically oriented, and fragmented solutions to complex ecocultural problems is that my study's participants, like many other people, are experiencing unprecedented existential anxiety about the future of life on earth. This palpable fear and anxiety, when paired with frustration at the current lack of national and global leadership, may lead people to suggest and buy into drastic solutions without thinking through the long-term and systemic effects those solutions would entail. Part of this comes from another emotion that, while most participants did not describe it directly, is implied in the construction of people as individual water users; specifically, I argue that many people feel alone in their personal actions for water conservation. Only the participants who grew up in households and communities in which mutualist relations with more-than-human life were directly taught and encouraged described their sense-of-self with water as primarily collective.

Despite the aloneness that many participants implied, I believe this is a hopeful finding for number of reasons. First, if it is true that aloneness is in part responsible for highly idealistic conceptualizations, then part of the work necessary to build more concrete and embodied action in water relations is very clear, and could involve research that works with people at the neighborhood and city levels to develop place-based plans for mutualist water relations, as well as the community organizational and political work to implement them. Second, it means that organizations like RGCF are already poised to

contribute to and encourage this kind of community connection. RGCF has invited me to conduct a series of workshops with other member farmers, and my long-term goal for these workshops is to help participants collectively identify strengths and assets in their neighborhoods for building community connection around water relations.[14]

Contributions of the Study

The present study is a valuable contribution to the literature on farmer and placed-based water discourses, and adds a number of important nuances to environmental communication literature, specifically through the lens of the ecocultural communication project (Carbaugh, 2007; Dickinson, 2014; Milstein, 2009, 2011, 2014; Milstein et al., 2011; Milstein & Castro Sotomayor, 2020; Milstein & Dickinson, 2014;), as well as a new empirical line of inquiry that links ecocultural communication studies with political ecology (Escobar, 2001; Ingram & Lejano, 2009; Mancilla-Garcia, 2015; McClintock, 2014).

The present study offers an important contribution to the environmental communication literature on ecocultural dialectics. Ecocultural scholars argue that ecology and culture are deeply imbricated, and through situated communication with and/or about multiple forms of life, ecological processes, and people, scholars can make sense of their relationships with the more-than-human world (Carbaugh, 2007; Dickinson, 2014; Milstein, 2009, 2011, 2014; Milstein et al., 2011; Milstein & Dickinson, 2014). Scholars have shown through comparative interpretative-critical

[14] Due to COVID-19 and my current geographical distance from New Mexico, these workshops have been postponed. As of the time of this writing, I am working on developing a virtual way to connect with farmers in the short-term until face-to-face workshops are possible again.

analysis that ecocultural meanings are often multiple and contradictory, and that people may engage in communication practices that construct simultaneous contradictory meanings about their relationships with other forms of life and connections to place. Ecocultural dialectics help to interpret and evaluate how these meanings and practices often exist side-by-side, interacting with one another in the way different participants with different experiences are influenced by multiple dominant and alternative cultural discourses, as well as in the way people talk about their relationships and practices, and the meaningfulness of those practices in their lives, communities, and cultures.

The present study supports Milstein's (2009) and Milstein and Dickinson's (2014) arguments that, generally speaking, in terms of ecocultural dialectics, one side of a dialectic tend to be composed of dominant ways of relating (i.e., those that have gained the most stability and historical power), while the other side tends to be influenced by alternative meanings (i.e., those that critique and challenge dominant power structures). Particularly, my study adds to Milstein's (2009) dialectic of exploitation-idealism, by demonstrating how idealist arguments in the context of action to mitigate climate disruption and exclusion are often largely exploitive in and of themselves. My addition of the embodiment pole to this dialectic shows concrete examples of food system and ecocultural activist strategies that are based on continuity between ecocultural histories of place-based practices, and the relating of emotion and collective action, as opposed to only individual action.

As people communicate about their identities, relationships, emotions, actions, and understandings of all of these as they relate to place, they often reconstruct both dominant and alternative meanings in single utterances (Marafiote & Plec, 2006).While

these utterances, themselves, may be hybrid combinations of dominant discourses, the study of dialectics as the interaction within and between symbolic and material practices demonstrates that hybridity does not necessarily mean synthesis, and that dominant and alternative meanings, when put into context, often clash and create conflict and tension as people go about making sense of the world around them. In terms of ecocultural dialectics, these tensions often manifest in the contradictions of core ecocultural meanings, or foundational premises upon which people build meaning about their own and others' cultural relationships in the more-than-human world.

My study also offers an empirical look at how, within the context of a sustainability-centered organization and place-based ecocultural practice, participants develop multiple arguments about their identities as agents in life systems. The study offers nuance to Plumwood's (1991) framework for understanding identity within apparently ecocentric ideologies and Rogers's (1998) framework for nonessentialist ways to conceptualize more-than-humans and more-than-human agency. My study provides empirical examples of discourse in which participants imply a variety of conceptualizations of self and other, some that reproduce idealist erasures of self and other or rationalize the separation of self and other, and others that show identities based in place-specific forms of care for more-than-humans, including waterways.

The present study also offers an example of how the theory of metabolic rift can inform ecocultural communication studies, and vice versa. Specifically, in showing how farmers construct meaning about water in daily life and farming practices, I provide an important example of both the situated, material, and symbolic construction of, and interaction between, different levels of metabolic rift (personal, social, and ecological)

(McClintock, 2014), and of specific examples of the ways in which people engaged in place-based discourse and practice are simultaneously engaged in challenging the capitalist and colonial origins of metabolic rift.

I show how personal rift manifested as the reckless use of water at home is in part produced through the atrophying discursive interaction between guilt and convenience. This rift is also reproduced through the way some people make sense of water flows by constructing symbolic barriers that separate ground and surface flows, and indoor and outdoor flows. At the personal level, metabolic rift is evidenced by the private, internal dialogue participants described having with themselves, and is marked by a tension between convenience and guilt (i.e., participants describe their lack of restraint as the result of personal and immediate benefits of convenience winning out over their feelings of guilt for using too much water). I argue that this personal discursive and pragmatic rift is part a of colonial and capitalist logic that argues that once water enters the home space through the tap, it becomes that household's property (people pay for its utility), and thus disconnects that water from its flows as a shared source of life. While guilt offers a glimmer of hope that with the right influences, people might change their water habits, I argue that the deeper sources of the ecological level of rift are the destructive logics of colonialism and capitalism of control and profit that construct people not as parts of an interconnected and interdependent life system, but as individual users of units of water.

Therefore, while the situated personal understanding of the interaction between guilt and convenience could arguably be used to push people to be more careful with water use, the construction of this personal rift is also influenced by larger scale forces of water governance that profit from both overuse and guilt about overuse (e.g., the AWA

sells discounted rain barrels for water conservation), constructing themselves as both the provider of water to the highest bidder and the authority on conservation and careful use. In terms of what this means for the study of metabolic rift, I argue that studying personal rifts through ecocultural discourse reveals that emotional discourse offers both part of the source of rift and part of the solution (i.e., being a more careful individual water user), the ecocultural framing demonstrates the more fundamental problem of forces that construct people as individual water users, and the way that a lack of ecocentric community influences leads to people only seeing their ecocultural identity in relation to water as users of an object. Thus, the lens of metabolic rift offers an important conceptual frame for understanding the historical-materialist origins of personal failures in water conservation, while the lenses of ecocultural dialectics and ecocultural identity show how metabolic rift is in part a problem of fragmented ecocultural identity constructed through the contradictory and extractivist logics of colonialism and capitalism.

The present study also adds an important contribution to understandings and action within Tsing's (2015) framework of precarity, which helps to inform a conceptualization of water in agriculture that serves a future of multispecies survival. Through a lens of precarious ecological relations that have developed historically, flooding has contributed to the widening of the river valley and the development of a functional aquifer (Fernald et al., 2012). Stopping the practice of flooding would irreversibly and simultaneously destroy efforts to build soil, migratory patterns and resting places for many different birds, the capacity of farmers to maintain a living, and the essential recharge of the aquifer that provides presently essential well water to thousands of people. Doing so would also mitigate the radiant heating effects of climate

change in micro climate areas, contributing to documented public health problems that have occurred in other urban areas. A lens of precarity also demonstrates the delicate balance between a long-term, Indigenous cultural way of life and the maintenance of flood water rights, not simply well water rights. It is about seeing our survival as part of collective survival, and not as something that can be technologically manufactured or reproduced without devastating effects to the one collective source of life.

Implications for Future Research

The findings of the present study point to several avenues for future research. Here, I summarize a few that I intend to pursue. I am interested in exploring how farmers construct alternative and embodied markers of success from the standardized organic certification. That is, many farmers in the present study were just as interested in restorative ecological work as they were in producing food for human communities. Research on both community-oriented understandings of other forms of success and satisfaction in farming, and on communicating those understandings to policy and funding structures are necessary if we are to move beyond fragmentation of organic certification.

The present study also points to the need for continued research on possibilities that exist for better farm-adjacent work in urban spaces, including the reclaiming of spaces containing place-based food systems that are currently at risk due to gentrification. This line of research would include the investigation of how the framework of relationality and embodiment and ecocultural continuity might inform strategies for pushing states to enforce strong regulations on polluting farming practices and building solidarity between multiple stages of the food system.

I am also interested in how the framework of relationality and embodiment might inform ecocultural education at multiple levels of curriculum, as well as create more public spaces for learning and consciousness-building in sites where place-based histories have largely been erased from cities and rural places through development. Because so many of the farmers in the present study do what they do because it makes them feel good, I also argue for research that encourages ecocentric education in recreational sites of multispecies interaction, including both regenerative sites and tourism that breaks down idealist and objectified borders, such as Pezzullo's (2009) work concerning tours of polluted and toxic spaces. Finally, and quite practically, I should now ask this question: How can the fragmentation-continuity framework contribute to helping sustainability-oriented organizations, like RGCF, reassess their long-term goals and immediate communication practices?

Limitations

While the present study shows a number of strengths, just as any study, it is also limited in what it accomplishes. One important limitation of the present study is that it works only with farmers who are directly engaged in, or actively trying to imagine and embody, regenerative farming practices. I believe that most conventional farmers are in some way interested in this kind of work, but are largely caught in economic circumstances that make regenerative food systems at larger scales unimaginable (part of the problem being the notion of scale itself). Future research must address how to build solidarity with conventional farmers, and demonstrate routes to regenerative farming that they can see as possible to embody.

Another important limitation comes from the fact that the participants interviewed for this study are likely completely representative of neither the views of regenerative farmers, nor of the views of technically-oriented farmers, nor of those of place-based movements for food sovereignty. While all of these perspectives inform my analysis of discourse in this study, longer-term research with multiple organizational and community sites is necessary to bring the findings of the present study from the level of exploratory to the level at which its ideas resonate with a larger audience.

Finally, I would argue that, because the context of the present study involves multiple histories of colonization and racism, and since I am a white man who was raised in a part of the United States that is at a substantial geographical and cultural remove from New Mexico, it is possible that some of my results were shaped by my own identity and lack of experience as a member of Indigenous communities and heritage. I do believe that the now five years of work I have done farming, organizing, and working with these communities have helped to build trust. However, I am also aware that I may not have had the positional experience and perspective to ask some specific questions that would get at the heart of participants' perspectives about race and colonization (or other social identity-based experiences). Future research, therefore, must be even more collaborative, in a conscious and meaningful way, in which both researchers and participants share community and historical experiences.

I want to end on a note that connects us all to the flow of streams and waterways. To be upstream is to be responsible to others, to be downstream is to trust others. Yet, we are always both up and downstream, so from a relational perspective, water itself is what allows us to understand the connection between responsibility and trust.

References

Abram, D. (1996). *The spell of the sensuous: Perception and language in a more-than-human world.* New York, NY: Vintage Books.

Albuquerque Bernalillo County Water Utility Authority. (2010). *Water 2010 Volume 1*. Retrieved from https://www.abcwua.org/uploads/files/Water_2120_Volume_I.pdf.

Allan, T. (1999). Productive efficiency and allocative efficiency: Why better water management may not solve the problem. *Agricultural Water Management*, *40*(1), 71–75.

Arellano, J. E. (2014). *Enduring acequias: Wisdom of the land, knowledge of the water*. Albuquerque, NM: University of New Mexico Press.

Bäckstrand, K. (2004). Scientisation vs. civic expertise in environmental governance: Eco-feminist, eco-modern and post-modern responses. *Environmental Politics, 13*(4), 695-714.

Baumgartner, T., & Pahl-Wostl, C. (2013). Water and its role in global water governance. *Ecology and Society*, *18*(3), Art. 3.

Beene, D. R. (2019). *Adjudication and the adaptive capacity of pecan farmers in the lower Rio Grande*. [Unpublished Master's Thesis]. University of New Mexico.

Bhaduri, B., Harbor, J. O. N., Engel, B., & Grove, M. (2000). Assessing watershed-scale, long-term hydrologic impacts of land-use change using a GIS-NPS model.' *Environmental Management*, *26*(6), 643–658.

Britton-Purdy, J. (2016, Decemeber). Environmentalism was once a social-justice movement: It can be again. *The Atlantic*. Retrieved from

https://www.theatlantic.com/science/archive/2016/12/how-the-environmental-movement-can-recover-its-soul/509831/

Brisman, A. (2003). Double whammy: Collateral consequences of conviction and imprisonment for sustainable communities and the environment. *William and Mary Environmental Law and Policy Review*, *28*(2), 423–475.

Budds, J. (2009). Contested H_2O: Science, policy and politics in water resources management in Chile. *Geoforum*, *40*(3), 418–430.

Carbaugh, D. (2005). *Cultures in conversation*. Mahwah, NJ & London: Lawrence Erlbaum Publishers.

Carbaugh, D. (2007a). Cultural discourse analysis: Communication practices and intercultural encounters. *Journal of Intercultural Communication Research*, *36*(3), 167–182.

Carbaugh, D. (2007b). Quoting "the environment": Touchstones on earth. *Environmental Communication: A Journal of Nature and Culture*, *1*(1), 64–73.

Carbaugh, D., & Cerulli, T. (2013). Cultural discourses of dwelling: Investigating environmental communication as a place-based practice. *Environmental Communication: A Journal of Nature and Culture*, *7*(1), 4–23.

Carbaugh, D., Gibson, T. A., & Milburn, T. (1997). A view of communication and culture: Scenes in an ethnic cultural center and a private college, In B. Kovačić (Ed.), *Emerging theories of human communication* (pp. 1-24). New York, NY: State University of New York Press.

Carbaugh, D., Nuciforo, E. V., Molina-Markham, E., & van Over, B. (2011). Discursive reflexivity in the ethnography of communication: Cultural discourse analysis. *Cultural Studies ↔ Critical Methodologies*, *11*(2), 153–164.

Carson, R. (1962). *Silent spring*. New York, NY: Houghton & Mifflin.

Cerulli, T., & Milstein, T. (2019). "Fellow hunters" and "humans of the ocean": Identity and relations across species. In T. Milburn & M. Scollo (Eds.), *Engaging and transforming global communication through Cultural Discourse Analysis: A tribute to Donal Carbaugh* (pp. 114–125). Madison, New Jersey: Fairleigh Dickinson University Press.

Clark, I. G. (1987). *Water in New Mexico: A history of its management and use.* Albuquerque, NM: University of New Mexico Press.

Cooper, A. (2002). Occasional paper no. 58: Contending environmental discourses: Multilateral agencies, social movements and water. SOAS Water Issues Study Group: School of Oriental and African Studies/King's College London University of London, 1–45.

Coulthard, G., S., (2014). *Red skin, white masks: Rejecting the colonial politics of recognition*. Minneapolis, MN: University of Minnesota Press.

Cox, R. (2007). Nature's "crisis disciplines": Does environmental communication have an ethical duty? *Environmental Communication*, *1*(1), 5–20.

DeLara, C. J. (2000). Who controls New Mexico's acequias? Acequia government and Wilson v. Denver. *Natural Resources Journal*, *40*(3), 727–754.

Deloria, P. J. (1998). *Playing Indian*. New Haven, CT: Yale University Press.

Dickinson, E. (2014). Ecocultural schizophrenia: Dialectical environmental discourses and practices. *Communication, Culture and Critique*, *4*, 612.

Dimitrov, R. S. (2002). Water, conflict, and security: A conceptual minefield. *Society & Natural Resources*, *15*(8), 677–691.

Dwyer, J. P. (1995). The practice of federalism under the clean air act. *Maryland Law Review, 54*, 1183-1225.

Emerson, R. M., Fretz, R. I., & Shaw, L. L. (2011). *Writing ethnographic fieldnotes*. Chicago, IL: University of Chicago Press.

Escobar, A. (1999). After nature: Steps to an antiessentialist political ecology. *Current Anthropology*, *40*(1), 1-30.

Escobar, A. (2001). Culture sits in places: Reflections on globalism and subaltern strategies of localization. *Political Geography*, *20*(2), 139-174.

Escobar, Arturo. (2008). *Territories of difference: Place, movements, life, redes*. Durham, NC: Duke University Press.

Estes, N. (2019). *Our history is the future: Standing Rock versus the Dakota Access Pipeline, and the long tradition of Indigenous resistance*. New York, NY: Verso.

Fahlund, A., Choy, M. L. J., & Szeptycki, L. (2014). Water in the west. *California Journal of Politics and Policy*, *6*(1), 1–42.

Fernald, A. G., Baker, T. T. & Guldan, S. J. (2007). Hydrologic, riparian, and agroecosystem functions of traditional acequia irrigation systems. *Journal of Sustainable Agriculture, 30*(2), 147–171.

Fernald, A., Tidwell, V., Rivera, J., Rodriguez, S., Guldan, S., Steele, C., Ochoa, C., Hurd, B., Ortiz, M., Boykin, K. & Cibils A. (2012). Modeling sustainability of

water, environment, livelihood, and culture in traditional irrigation communities and their linked watersheds. *Sustainability*, *4*(11), 2998–3022.

Food and Agricultural Organization of the United Nations (2018). The state of agricultural commodity markets: Agricultural change, climate change, and food security. Retrieved from http://www.fao.org/3/I9542EN/i9542en.pdf.

Foster, J. B. & Burkett, B. (2016). *Marx and the earth: An anti-critique*. Chicago, IL: Haymarket Books.

Foucault, M., & Nazzaro, A. M. (1972). History, discourse and discontinuity. *Salmagundi*, *20*, 225-248.

Franklin, S. (1995). Science as culture, cultures of science. *Annual Review of Anthropology*, *24*(1), 163-184.

Goodall, J. (2010). Through a window: My thirty years with the chimpanzees of Gombe. Boston, MA: Houghton, Mifflin, & Harcourt.

Guthman, J. (2008). Bringing good food to others: Investigating the subjects of alternative food practice. *Cultural Geographies*, *15*(4), 431-447.

Hall, S. (1986). On postmodernism and articulation. *Journal of Communication Inquiry*, *10*(2), 45-60.

Hartley, D. (2016). Anthropocene, capitalocene, and the problem of culture. In J. W. Moore. (Ed.) *Anthropocene or capitalocene?: Nature, history, and the crisis of capitalism*, (loc 3117-loc 3338). Oakland, CA: PM Press/Kairos.

Heinz, B., Cheng, H. I. C., & Inuzuka, A. (2007). Greenpeace greenspeak: A transcultural discourse analysis. *Language and Intercultural Communication*, *7*(1), 16–36.

Herndl, C. G., & Brown, S. C. (1996). *Green culture: Environmental rhetoric in contemporary America.* Madison, WI: University of Wisconsin Press.

Hoffmann, J. A. (2018). "Organic is mMore of an American term… We are traditional farmers": Discourses of place-based organic farming, community, heritage, and sustainability. *Environmental Communication, 12*(6), 807-824.

Hoffmann, J. A. (2020). Memory, waterways, and ecocultural identity. In T. Milstein & J. Castro Sotomayor (Eds.), *The Routledge handbook of ecocultural identity* (pp. 145-163). London: Routledge.

Hymes, D. (1971). Sociolinguistics and the ethnography of speaking. In E. Ardener (Ed.), *Social anthropology and language* (pp. 47–93). London: Routledge.

Ingram, H., & Lejano, R. (2009). Transitions: Transcending multiple ways of knowing water resources in the United States. In D. Huitema & S. Meijerink (Eds.), *Water policy entrepreneurs: A research companion to water transitions around the globe* (pp. 61–78). Cheltenham, UK: Edward Elgar Publishing.

Jarosz, L. (2014). Comparing food security and food sovereignty discourses. *Dialogues in Human Geography*, *4*(2), 168.

Kaufman, M. M. (2000). Erosion control at construction sites: The science–policy gap. *Environmental Management*, *26*(1), 89-97.

Laclau, E. & Mouffe, C. (1985). *Hegemony and socialist strategy*. London: Verso.

Landy, M. K., Roberts, M. J., & Thomas, S. R. (1990). *The environmental protection agency: Asking the wrong questions.* New York, NY: Oxford University Press.

Lane, K. M. D. (2011). Water, technology, and the courtroom: Negotiating reclamation policy in territorial New Mexico. *Journal of Historical Geography*, *37*(3), 300–311.

Leybourne, M., & Gaynor, A. (2006). *Water: Histories, cultures, ecologies.* Melbourne, Australia: University of Western Australia Press

Lindlof, T. R., & Taylor, B. C. (2017). *Qualitative communication research methods*. London, UK: Sage.

Linton, J. 2010. *What is water? The history of a modern abstraction*. Vancouver: University of British Columbia Press.

Linton, J., & Budds, J. (2014). The hydrosocial cycle: Defining and mobilizing a relational-dialectical approach to water. *Geoforum*, *1*(57), 170–180.

Maass, A. (1951). *Muddy waters: The Army Corps of Engineers and the nation's rivers.* Cambridge, MA: Harvard University Press.

Mackenzie, L., & Tenzek, K. (2019). Cultural variation in end-of-life conversations: Using cultural discourse analysis to inform case studies designed for professional military education. In T. Milburn & M. Scollo (Eds.), *Engaging and transforming global communication through Cultural Discourse Analysis: A tribute to Donal Carbaugh*. Madison, New Jersey: Fairleigh Dickinson University Press.

Mancilla-García, M., (2015). Does social media benefit dominant or alternative water discourses? *Water Alternatives*, *8*(2), 125–146.

Marafiote, T., & Plec, E. (2006). From dualisms to dialogism: Hybridity in discourse about the natural world. *Environmental Communication Yearbook, 3,* (49–75.

Markwell, S., Rivera, J. A., Gonzales, M., & García, J. J., (2016). *The Rio Chama Basin: A Social-Ecological History Linking Culture and Nature*. Albuquerque, NM: The Center for Regional Studies, University of New Mexico Digital Repository.

Mason, R. J. (2007). *Collaborative land use management: The quieter revolution in place-based planning*. New York, NY: Rowman & Littlefield Publishers.

Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, & T. Waterfield. (Eds.). (2018*). Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.* Geneva, Switzerland: IPCC, World Meteorological Organization.

Matthews, K. (2018). *¡No se vende! Water as a right of the commons*. La Vergne, TN: Lightning Source.

McClintock, N. (2010). Why farm the city? Theorizing urban agriculture through a lens of metabolic rift. *Cambridge Journal of Regions, Economy, and Society*, *3*(2), 191-207.

McMichael, P. (2014). *Historicizing food sovereignty*. Journal of Peasant Studies, *41*(6), 933-957.

Milstein, T. (2009). “Somethin’ tells me it's all happening at the zoo”: Discourse, power, and conservationism. *Environmental Communication*, *3*(1), 25-48.

Milstein, T. (2011). Nature identification: The power of pointing and naming. *Environmental Communication*, *5*(1), 3-24.

Milstein, T., & Dickinson, E. (2012). Gynocentric greenwashing: The discursive gendering of nature. *Communication, Culture & Critique, 5*(4), 510-532.

Milstein, T., Anguiano, C., Sandoval, J., Chen, Y. W. & Dickinson, E. (2011). Communicating a "new" environmental vernacular: A sense of relations-in-place. *Communication Monographs*, *78*(4),486–510.

Milstein, T., Thomas, M., & Hoffmann, J. (2019). Dams and flows: Immersing in Western meaning systems in search of ecocultural Reflexivity. *Environmental Communication, 13*(1),104-117.

Mitsch, W. J. & Gosselink, J. G. (2000). The value of wetlands: Importance of scale and landscape setting. *Ecological Economics, 35*(1), 25–33.

Molle, F. (2009). River-basin planning and management: The social life of a concept. *Geoforum*, *40*(3), 484-494.

Moore, J. W. (2015). *Capitalism in the web of life: Ecology and the accumulation of capital.* New York, NY: Verso.

Moore, J. W. (Ed.). (2016). *Anthropocene or capitalocene? Nature, history, and the crisis of capitalism*. Oakland, CA: PM Press/Kairos.

Morgan, E. L. (2003). Discourses of water: A framework for the study of environmental communication. *Applied Environmental Education & Communication*, *2*(3), 153–159.

Mudege, N. N., & Zulu, E. M. (2011). Discourses of illegality and exclusion: When water access matters. *Global Public Health*, *6*(3), 221–233.

Nazarea, V. D. (2006). Local knowledge and memory in biodiversity conservation. *Annual Review of Anthropology, 35*, 317-335.

Nazarea, V. D., Rhoades, R. E., & Andrews-Swann, J. E. (2013). *Seeds of resistance, seeds of hope: Place and agency in the conservation of biodiversity*. Phoenix, AZ: University of Arizona Press.

Ono, K. A., & Sloop, J. M. (1995). The critique of vernacular discourse. *Communication Monographs*, *62*(1), 19–46.

Oravec, C. (1984). Conservationism vs. preservationism: The "public interest" in the Hetch Hetchy controversy. *Quarterly Journal of Speech*, *70*(4), 444.

Pecos, R. (2007). The history of Cochiti Lake from the Pueblo perspective. *Natural Resources Journal, 47*(3), 639-652.

Peterson, M. N., Peterson, M. J., & Peterson, T. R., (2007). Environmental communication: Why this crisis discipline should facilitate environmental democracy. *Environmental Communication*, *1*(1), 74–86.

Pezzullo, P. C. (2007). *Toxic tourism: Rhetorics of pollution, travel, and environmental justice.* Montgomery, AL: University of Alabama Press.

Philipsen, G. (1997). A theory of speech codes. In G. Philipsen & T. L. Albrecht (Eds.), *Developing communication theories* (pp. 119-156). Albany, NY: State University of New York Press.

Philipsen, G., Coutu, L. M., & Covarrubias, P. (2005). Speech codes theory: Restatement, revisions, and response to criticisms. In W. Gudykunst (Ed.), *Theorizing about intercultural communication* (pp. 55–68). New York, New York: Sage.

Plumwood, V. (1991). Nature, self and gender: Feminism, environmental philosophy, and the critique of rationalism. *Hypatia*, *6*(1), 3–27.

Poiani, K. A. & Bedford, B. L. (1995). GIS-based nonpoint source pollution modeling: Considerations for wetlands. *Journal of Soil and Water Conservation, 50*(6), 613–619.

Popovich, N., Albeck-Ripka, L., & Pierre-Louis, K. (2020, November 10). The Trump administration is reversing 100 environmental rules. Here's the full list. *New York Times*. Retreived from https://www.nytimes.com/interactive/2020/climate/trump-environment-rollbacks.html

Pulido, L. (2017). Geographies of race and ethnicity II: Environmental racism, racial capitalism and state-sanctioned violence. *Progress in Human Geography*, *41*(4), 524-533.

Rivera, J. A. (1998). *Acequia culture*. Albuquerque, NM: University of New Mexico Press.

Robbins, P. (2012). *Political ecology: A critical introduction.* (2nd ed). Malden, MA: John Wiley & Sons.

Rogers, R. A. (1998). Overcoming the objectification of nature in constitutive theories: Toward a transhuman, materialist theory of communication. *Western Journal of Communication*, *62*(3), 244-272.

Rudnick, L., Witteborn, S., & Edmonds, R. (2019). Engaging change: Exploring the adaptive and generative potential of cultural discourse analysis findings for policies and social programs. In T. Milburn & M. Scollo (Eds.), *Engaging and transforming global communication through cultural discourse analysis: A tribute*

to Donal Carbaugh (pp. 172–182). Madison, New Jersey: Fairleigh Dickinson University Press.

Schwarze, S. (2007). Environmental communication as a discipline of crisis. *Environmental Communication*, *1*(1), 87–98.

Scollo, M. (2011). Cultural approaches to discourse analysis: A theoretical and methodological conversation with special focus on Donal Carbaugh's cultural discourse theory. *Journal of Multicultural Discourses*, *6*(1), 1–32.

Scollo, M., & Milburn, T. (Eds.). (2019). *Engaging and transforming global communication through cultural discourse analysis: A tribute to Donal Carbaugh*. Madison, New Jersey: Fairleigh Dickinson University Press

Simpson, A. (2014). *Mohawk interruptus: Political life across the borders of setter states.* Durham, NC: Duke University Press.

Sneddon, C. (2015). *Concrete revolution: Large dams, cold war geopolitics, and the US Bureau of Reclamation*. Chicago, IL: University of Chicago Press.

Strang, V. (2006). Substantial connections: Water and identity in an English cultural landscape. *Worldviews: Global Religions, Culture, and Ecology*, *10*(2), 155-177.

Sultana, F. (2013). Water, technology, and development: Transformations of development technonatures in changing waterscapes. *Environment and Planning D: Society and Space*, *31*(2), 337–353.

Swyngedouw, E. (2004). *Social power and the urbanization of water: Flows of power*. Oxford, UK: Oxford University Press.

Taylor, K. S., Longboat, S., & Grafton, R. Q. (2019). Whose rules? A water justice critique of the OECD's 12 principles on water governance. *Water*, *11*(4), 809–809.

Tsing, A. L. (2015). *The mushroom at the end of the world: On the possibility of life in capitalist ruins.* Princeton, NJ: Princeton University Press.

University of California Small Farms (2020). Best practices for promoting food safety in organic production: Water quality. Retreived from: http://sfp.ucdavis.edu/pubs/SFNews/Vol2-2000/best

Walton, B. (2016). Infographic: The age of US drinking water pipes – From civil war era to today. *Circle of Blue: Water News*. Retrieved from <https://www.circleofblue.org/2016/world/infographic-the-age-of-u-s-drinking-water-pipes-from-civil-war-era-to-today/#:~:text=An%20estimated%201.9%20million%20kilometers,supply%20Americans%20with%20drinking%20water>.

Wilson, C. (1997). *The myth of Santa Fe: Creating a modern regional tradition*. Albuquerque, NM: University of New Mexico Press.

Workman, C. L. (2019). Ebbs and flows of authority: Decentralization, development and the hydrosocial cycle in Lesotho. *Water*, *11*(2), 184-201.

Yeager, P. C. (1987). Structural bias in regulatory law enforcement: The case of the US Environmental Protection Agency. *Social Problems, 34*(4), 330-344.

Yerba Mansa Project (n.d.). Rio Grande Bosque. Retrieved from https://yerbamansaproject.org/rio-grande-bosque/.

Appendix A: Interview Guide

1. Please describe your relationship with the Rio Grande Community Farm (RGFC).
    a. How long have you been connected with the farm?
    b. How did you learn about the farm and the work farmers were doing here? In what ways do you connect with the farm?
2. Outside of your work on this farm, when you hear "water," what comes to mind?
    a. What are your first memories of water?
    b. Can you talk about your childhood experiences with water?
    c. Are there any moments with water in your life that stand out in a powerful way?
    d. Does your family tell any stories about water?
        i. Your communit(y)(ies)?
        ii. What stories about water, even if not your own, are important to you?
    e. What is water like for you at home? How would you describe the water where you live? Inside your home? outside?

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3. How would you describe water and the living world at RGFC?
    a. What relationships stand out to you right now? Relationships other than human?

   b. What relationships have you learned about during your time with RGFC? Other than human?
   c. Can you describe those that are most important?
   d. Can you describe the relationship between farming here and other living beings along the Bosque ecosystem?
   e. Have you or others you've worked with had any opportunities, informal or formal, to talk about or share what you have learned about the ecosystem that's at and near the farm?
4. Think ahead 20 years from now. Will you describe how the human relationship with water in this place might change in 20 years?
   a. How will other living things be affected by the changes you imagine?
   b. How do you *want* the relationship with water to be?
   c. What do you believe is necessary to make your vision real?