Collecting Water: An Analysis of a Multidisciplinary Special-Subject Archives

Patricia J. Rettig

ABSTRACT

The Water Resources Archive at Colorado State University documents Colorado's diverse water history. To examine what the repository has collected in this multidisciplinary subject area, a collection analysis was conducted on its first one hundred collections. Categories created for geography and subjects provide an intellectual framework. The analysis reveals both collection strengths and gaps, which can help prioritize future acquisition activities. The collection analysis also reveals that documenting Colorado water history means the majority of collections reflect the mainstream historical arc, but other narratives matter and are included, if not yet adequately. Though white men working in areas of water management, engineering, and agriculture, mainly in the South Platte Basin, dominate the archive's collections, all basins of the state are documented, numerous subjects are represented, and women are present in a variety of roles. The benefits of a collection analysis include the establishment of an intellectual framework and a view toward different collecting directions.

KEY WORDS

Collection analysis, Water history, Collecting repositories, Colorado State University

Water is ubiquitous. Yet water history is local, shaped by geography and geology, weather and wildlife. Water both creates the environment of a place and is affected by that environment. Lessons learned from local water histories, however, can be applied globally. Whether how to build massive dams to impound water, how to clean up polluted streams, or how to share rivers across political borders, such lessons can transfer around the world.

Water is essential. Yet water history can be very personal. Men and women create dams, laws, and institutions, and each person involved has knowledge, experiences, and emotions that affect his or her activities. Actions taken by people in relation to water can reverberate throughout a region and have a worldwide effect.

These grand yet granular characteristics of water engender a unique and fascinating history. Yet this immensely important, most ordinary substance is rare as a focus of an archival collecting repository. While institutions may collect water-related documents among the papers of civil engineers, environmentalists, and politicians, or records of agricultural groups, grassroots organizations, and professional societies, only two collecting repositories in the United States focus specifically on water, and both are in the arid West.[1] The older is the Water Resources Collections and Archives (WRCA), created in 1958 at the University of California, Berkeley, and relocated to Riverside in 2011.[2]

The other, and the focus here, is the Water Resources Archive at Colorado State University (CSU) in Fort Collins. Created by campus water professionals inspired by the WRCA, the Water Resources Archive provides a home for water-related collections that otherwise may have been lost to history. Losing a place's water history, especially for a state such as Colorado, means losing part of the fundamental fabric of society. While wetter locales may have the luxury of taking supplies for granted, Colorado has always been affected by its semi-arid climate and has long worked to move water to appropriate places for beneficial uses. This complex history is embedded in the state's every ditch headgate, river dam, water law, and floodplain study that humans have placed, constructed, written, or conducted.

Yet water is more than hydrology, even more than law and ecology and agriculture. The Water Resources Archive documents Colorado's experience with this diversity of water activities so all can better learn lessons from the past to prepare for the increasingly complicated future. By acquiring papers of water lawyers and utility managers, records of ditch companies and grassroots groups, the Water Resources Archive has established a firm foundation of collecting the multidisciplinary subject of water. To dive below the surface and explore what the archive collects—for the benefit of archivists, administrators, and researchers alike—this article focuses on an analysis of the archive's initial one hundred collections. A literature review is followed by a brief history of

Colorado's water to contextualize the Water Resources Archive and its establishment. Then the collection analysis methodology is presented, followed by results and discussion, which will show what it means to document the diversity of water history, including the geographic scope, the subject range, and gaps in the collections.

Literature Review

In 1988, two historians separately recognized water history as a distinct research area. Lawrence B. Lee posited water resources history as a new field of historiography. In tracing its emergence and evolution, he pointed out that "sectionalism" played a role and that, for the West, what began with a focus on reclamation history had broadened in recent years.[3] Donald J. Pisani wrote that "in the last decade, the history of water in the American West has come of age."[4] In looking to its future, Pisani encouraged "thorough and careful research in archival and manuscript sources" but also stated that his observations might be a "historiographical aberration."[5]

In the nearly three decades since, this has not proven true. Western water history has grown and broadened with increasing numbers of books, journal articles, and documentaries on a variety of topics. There has been more archival research and additional resources for historians, journalists, political scientists, and others to tap into. Demonstrating the growing interest in water history worldwide and "that something of an exceptional nature is afoot with respect to the idea of water," the International Water History Association formed in 2001 with a focus on bringing together scholars and practitioners from around the world to discuss and promote water history.[6]

Archival literature has not kept pace with either the burgeoning research field or the historical literature concerning water history. Although a few articles in recent decades have discussed documentation of the environment, none specifically focused on water.[7] And, of course, water history goes beyond the environment. It is part science, part policy; part agriculture, part recreation; part engineering, part ecosystems; part economics, part management—and more. Articles on special-subject repositories little discuss these areas, and none touch on water.[8] Because water history is multidisciplinary, a repository documenting it has a lot to wrap its archival arms around; this is the first article to address the area.

Understanding the breadth of a multidisciplinary subject such as water is not easy. Though water appears to be a universally uniform substance, chemically H_2O, it conceptually shifts when examined through different lenses. For example, a number of recent books give vastly varied views on water. In *Rain: A Natural and Cultural History*, Cynthia Barnett approached precipitation history

through scientific measurement, clothing innovation, religion, literature, and scent. The subtitle of *Blue Mind: The Surprising Science that Shows How Being Near, In, On, or Under Water Can Make You Happier, Healthier, More Connected, and Better at What You Do* summarizes author Wallace J. Nichols's aim in discussing water's psychological and physiological effects. Jamie Linton's *What Is Water? The History of a Modern Abstraction* describes evolving historical understandings of water, especially through the hydrologic lens.[9] Extend these examples to different academic disciplines, geographic regions, and professions, and the variety of views only increases.

Colorado Context

The Water Resources Archive's founding mission established the goal of documenting Colorado's water resources history, taken liberally and with little restriction. Though not specifically defined, "water" in this context is what Euro-American settlers saw and used starting in the 1850s. Under the term "water resources," as defined by Linton, this has typically been approached as the supply and use of water for practical human activities, rather than as a spiritual conduit. The supply concerns the water sources: precipitation (rain and snow), surface water (streams and lakes), and groundwater (aquifers). Water use is usually divided into agricultural (farms and ranches), municipal (households and landscapes), industrial, recreational, and environmental. Beyond supply and use, both geographic and subject coverage matter.

Circumscribed by the state's borders, the Water Resources Archive's collecting results from Colorado's water context.[10] In 1861, the eventual state received the headwaters of four major western rivers when the Colorado Territory borders were drawn specifically to enclose mineral-rich mountains along with sufficient land having agricultural potential.[11] On the east side of the Continental Divide bisecting the state, runoff from Rocky Mountain snow flows within the Rio Grande, Arkansas, and Platte River Basins. On the west side, the Colorado River Basin funnels snowmelt into the Southwest's most significant river. Groundwater trickles under the land in several aquifer systems, benefiting both the western Colorado Plateau and the eastern plains.

Because boxy borders were imposed across water bodies, from the beginning, Colorado's neighbors paid attention to water activities upstream in the Headwaters State. The few streams that flow into Colorado immediately flow back out, making Colorado unique as a water-providing state—until Hawaii joined the Union. In a semi-arid climate producing little regional precipitation—excepting abundant mountain snows in good years—surface water and groundwater supplied miners, farmers, ranchers, and city dwellers alike. Settlers displaced Native Americans, who were guaranteed water rights on their

reservations. In the San Luis Valley, the settlers' Hispanic culture survived later Anglo arrivals and provided irrigation examples with their *acequia* systems.

With increasing settlement, conflicts over short water supplies quickly arose, both within Colorado and between states. To reduce conflict internally, the state's 1876 constitution included the law of prior appropriation, also known as the Colorado Doctrine. In whole or in part, other western states adopted the concept, oversimplified as "first come, first served" in terms of who got water, but that adoption had a role in instigating Kansas, Wyoming, and Nebraska to each bring interstate water rights lawsuits against Colorado between 1901 and 1916.[12] A Colorado water lawyer suggested a legal solution to limit such litigation; this resulted in interstate river compacts, the first being the Colorado River Compact, negotiated and signed by seven states in 1922.[13]

Growth in both agricultural irrigation and municipal population placed increasing demands on Colorado's water supplies. Engineering solutions emerged, including megaprojects like the Colorado–Big Thompson Project, a U.S. Bureau of Reclamation transmountain diversion that pipes Colorado River Basin water under the Continental Divide to the South Platte River Basin. Such complexities required more study of the water supply, new engineering techniques, and an increased administrative infrastructure. State agencies and quasigovernmental bodies grew like irrigated corn across Colorado.

As recreational interests such as skiing, rafting, and kayaking increased with post–World War II prosperity, citizens became concerned about the environment. The first significant environmental battle in the United States concerned a potential dam, ultimately defeated, on the Green River in Echo Park, near Colorado's Dinosaur National Monument. Since then, similar battles to preserve wilderness have heated up and not cooled. The legacy of mining waste as well as new extraction technologies have heightened awareness about water-quality issues.

Complicating human activities, drought frequents the state, often punctuated by destructive floods. Deluges devastated the Big Thompson Canyon and nearby areas in 1976 and 2013, both amid drought periods. Natural events like these spur additional laws, studies, and infrastructure. The 2002 drought prompted a statewide planning process that began with basin roundtables discussing local challenges and resulted in Colorado's first water plan in November 2015.

Passions and professions have unified the individuals and organizations working to protect and use Colorado's water—each according to its own interests—into the Colorado water community. The professions include farmers, lawyers, professors, engineers, biologists, botanists, climatologists, chemists, economists, educators, environmentalists, historians, writers, artists, and more. Numerous water-related forums and conferences bring people together,

sometimes by geography, sometimes by topic. Though contentious conflicts exist within the community, everyone seems to know everyone else in this tight-knit group.

Context of the Water Resources Archive

The Water Resources Archive operates within this context. Indeed, this context created the Water Resources Archive at the state's land-grant university, an institution where water has been part of the educational curriculum, research agenda, and outreach activities from the start. Shortly after starting classes in 1879, the State Agricultural College, as CSU was then named, initiated its water-related research with agriculture and engineering, and, in 1886, Professor Elwood Mead developed the nation's first irrigation engineering course.[14] Ever since, Colorado State University has worked closely with government agencies on water-related research and application, desperately needed as settlers developed farms and cities in the arid and the mountainous regions of the state, and more so as complexities arose during succeeding decades.

The historical—and ongoing—significance of CSU's contributions to water education and research caused key university personnel to envision a water archives ten years before one commenced. In 1991, the two directors of the Colorado Water Resources Research Institute (CWRRI), a campus entity federally authorized and serving the state, saw water history—related to both CSU and Colorado broadly—actively at risk, so they initiated discussions with potential participants in the creation of a water archive.[15] With the "library's space problems" being an obstacle, the CWRRI began accepting offered archival collections, with some also going to the History Department's Colorado Agricultural Archives.[16]

The idea of preserving CSU's and/or Colorado's water, agricultural, and natural resources heritage resurfaced early in 1997 but got derailed when a major flood devastated campus that July; all activities peripheral to recovery were dropped.[17] When the flood insurance funds were competitively distributed four years later, the time was finally right to revive the old proposals, now focused solely on a water archives serving the state. The University Libraries received an allocation to begin the Water Resources Archive, as part of the Archives and Special Collections Department, with a start date of July 1, 2001.[18]

These origins continue to have impact. Significantly, the Water Resources Archive was not created out of the University Libraries' desire to add a new subject area or to satisfy a user demand. The archive was created as a partnership between the libraries and the Colorado Water Resources Research Institute *for* the water community. Various individuals, including CSU alumni, employees, and associates, wanted their papers—their work, their legacies—preserved, so

they naturally turned to an institution with recognized water expertise where they already had strong connections. To the CWRRI's credit, the directors engaged with the libraries and the History Department for their areas of knowledge. The partnerships that formed, along with the initial impetus to serve the water community by preserving what they wanted to give, have continued to be a driving force for the archive's activities.

When formed, the archive acknowledged it was operating in a landscape where existing repositories had related collections. Government archives at all levels held water-related documentation, most significantly the Colorado State Archives and the Denver branch of the National Archives and Records Administration. Several academic archives, historical societies, and public libraries across the state also held important water-related collections.[19] Efforts were made to become acquainted with these repositories, to form cooperative instead of competitive relationships. The Water Resources Archive recognized that although actively filling an archival niche statewide, "territory" should not be tread upon. Additionally, if potential donors distant from Fort Collins expressed interest in keeping collections nearby, local repositories were recommended with permission.

The Water Resources Archive's collecting activities began with gathering caches from various parts of campus, including the Colorado Water Resources Research Institute, the History Department's Colorado Agricultural Archives, and the Engineering Research Center. Within the first year, about a dozen collections comprised the archive. Because the department head at the time eschewed a processing backlog, additional collecting was not immediately pursued.[20] When the time came for more active acquisition, the priority went to older materials long stored in attics, barns, and basements, with more contemporary collections of interest but less urgent.

From the start, the author has been the sole full-time archivist dedicated to the Water Resources Archive.[21] With changes of department heads over the years and with increased knowledge and experience, the archivist has had growing responsibilities for the archive as a whole, including accepting donations. At first, all acquisition decisions were discussed with the department head prior to action. This evolved into the archivist making decisions about acquisitions and informing the department head in advance, requesting input or approval when a particularly large or troublesome collection was of interest or when a complex donor situation or special request arose, such as scanning "everything."

The Water Resources Archive acquired its one-hundredth collection in August 2015, fourteen years and one month after being established. As a collecting repository, the archive seeks donations of both personal papers and business or organizational records. Beyond the initial collections gathered from across campus, collecting has relied on extensive outreach, engaging with the

water community to get to know individuals and organizations. The archivist has planted many seeds with potential donors and worked on cultivating those relationships and ideas about donations.[22] Beyond personal participation and other outreach to raise awareness about the archive, the community's word of mouth (a professional form of peer pressure) has been a significant asset in acquiring collections. Additionally, in this Internet age, simply having a website helps potential donors outside the water community—such as heirs—connect with the archive.

Though donations become state property, the government does not have direct control. The academic nature of the archive's setting implies a nonpolitical and unbiased operation, and the archive strives to avoid political self-interest in relation to collection acquisitions. Because of the political and financial nature of water rights ownership and use, some organizations are inherently suspicious of turning over materials to the government. Other potential donors are wary of the archive's bias toward openness, as a public institution funded in part by tax dollars, as well as in the interest of academic freedom and archival ethics. Reasonable restrictions are discussed with donors, but some prefer to retain their materials.

In 2013, the Water Resources Archive created a formal collection development policy as part of a wider department effort (see Appendix A).[23] Though not highly detailed, the policy embraces the broad subject coverage and wide view of what constitutes documentation that Linda Henry encouraged for special-subject repositories.[24] The most condensed version of the collection policy, "Colorado water," conceals the complexities involved, including dual documentation areas: individuals and organizations in Colorado involved in water activities, and water resources in Colorado. In the first case, no restriction on the water's location exists, thus giving rise to nationally and internationally related collections. In the second case, no geographic restriction exists on where people or institutions may be working with Colorado water resources, thus allowing appropriate donations from out of state.

The 2013 policy also permits collecting "materials from or about other western states that have a close relationship to Colorado's water issues" even if not directly about Colorado, as a nod to supporters wanting the Water Resources Archive to expand beyond the state. This has not been pursued given the wealth of water information within state borders and the limitations of one archivist. The policy also acknowledges the repository's origins by placing emphasis on "materials having long-term research and documentary value for the Colorado water community," which allows for the possibility of simply saving important documentation, regardless of potential research interest. Additionally, the policy accepts materials that "go beyond the subject of water," indicating, for example, interest in a person's entire life, not just his or her water-related work.[25]

Methodology

With the arrival of the one-hundredth collection, the Water Resources Archive reached a milestone, providing an excellent opportunity to examine the results of fourteen years of collecting. It seemed an opportune time to gauge the archive's success, test and correct the archivist's assumptions, and create a more solid foundation from which to communicate with various constituencies about the collections, including administrators, future staff, funders, researchers, and other archivists, especially those contemplating adding water as a collecting area. For these reasons, along with potential utilization for future appraisal and acquisition decisions, collection analysis, "a method to assess a repository's holdings in specific categories," was selected as an appropriate approach.[26]

For the Water Resources Archive, key characteristics to discover from the collection analysis relate to the collection policy in brief: Colorado water. That is, geographical coverage needed to be examined to determine if water was being documented statewide, as well as the extent to which it was being covered beyond the borders. Additionally, determining coverage of the key aspects of water—supply and use—was important. Finally, examining subject coverage was critical to capture aspects beyond the supply-use paradigm, such as economics, education, and scientific study. Basic data captured about each collection in the analysis included collection type and size, date span, and presence of media and digital items. See Appendix B for the collection analysis key containing the full list of categories, two of which require further explanation.

To assess the complexity of geographical coverage, two geographical subcategories were created. Although it made sense to examine coverage by river basin, this breakdown omitted certain points of interest, such as other states, countries, or tribes. The first subcategory, for Colorado river basins along with Metro Denver, came from how the state divided itself when it established basin roundtables in 2007.[27] The advantage of using this predetermined set is that it aligns with how the state's water community has come to see itself and therefore could be useful in communicating geographic strengths or needs to the water community. It also targets river basins at a more granular level than considering only the four dominant ones, especially because the sub-basins on the West Slope (San Juan/Dolores, Gunnison, and Yampa/White/Green) are all Colorado River tributaries. The second geographical subcategory looked at political units for Colorado, tribal, other western states/basins, other nonwestern states/basins, and international.

The most complex category proved to be subjects, which could be endless for a multidisciplinary entity such as water. However, as Judith Endelman argued, "The creation or selection of a list of subject categories to provide the intellectual framework for a collection analysis is perhaps the most critical

element in the project design."[28] While the other categories had limited scopes and thus could be examined comprehensively, subjects were restricted to a primary and secondary selection. A list of subjects of known prominence within the collections was created, though this inevitably introduced some bias from the archivist. [29] Nevertheless, the subjects selected would be able to show the dominant areas of the collections, and new terms could easily be added should there be a desire to continue the analysis for future acquisitions.[30] Data on the one hundred collections were compiled in a spreadsheet by categories, using information from finding aids for processed collections and accession records, preliminary inventories, and online collection summaries for unprocessed collections.[31]

Results

To "report on the actual research results" as encouraged by Richard Cox and yet not dwell on every detail, those of most interest are presented as a profile of the Water Resources Archive.[32] Personal papers dominate the repository (sixty-one out of one hundred collections), nearly all of which document Caucasian males. Showing more variety, the thirty organizational collections document seven types of organizations, mainly ditch/reservoir companies, interest groups, and government agencies.[33] The remaining nine collections are either artificial or oral history collections.

The archive covers the years 1827 to 2015 with a fairly even spread across the collections; the bulk dates can be pared down to 1882 to 2013. The average collection size is 27.5 linear feet, though the median is 9. Physical collections range from 0.25 to 398 linear feet, and three collections consist entirely of born-digital materials. Twenty-eight collections contain audiovisual media, and thirty-eight contain digital media. Twenty-five collections are unprocessed, though nine processed collections have unprocessed accretions.

The collections document water supply far more thoroughly than use. Nearly three-quarters (seventy-two) of the collections relate to water supply, with surface water being the dominant source covered (sixty-eight collections). In contrast, just over a third of the collections (thirty-eight) cover water use, with agricultural use being most prominent.

With the collections comprehensively categorized and quantified, the subject strengths become apparent: water management, engineering, and agriculture. Also apparent is the diversity of subjects represented, even if by few collections. These additionally include law, policy, environment, science, economics, education, wildlife, water quality, conservation, and recreation (given in order of decreasing quantities). Of course, most collections cover more than

two subject areas, but even assigning a primary and secondary to each helps give a picture of the archive.

By far, the geographical strength is the South Platte River Basin, with the Colorado River mainstem being the secondary strength. However, ten or more collections cover every basin and Metro Denver, and collections are rarely isolated to one river basin. Beyond Colorado, more than half the collections document other western states, and a quarter of the collections document water internationally. Four collections relate to tribal reservations.

To examine the results more closely, starting with basic collection data, the collection analysis shows that the Water Resources Archive has documented well over 130 years of Colorado water history, including the recent past. Thus, the entire span of Colorado water development by Euro-Americans is being preserved, except perhaps the very earliest years, where only a smattering of documentation may have survived. The high numbers of collections with audiovisual materials and digital media demonstrate a commitment to diverse material types, though paper dominates.

The large number of collections documenting water supply, mainly surface water, matches the state's concern about where water is coming from and obtaining sufficient quantities.[34] For water use, the high number of collections documenting agriculture reflects the state's statistics, as 85 percent of the water in Colorado is used for agriculture.[35] Another state fact is that most of the water is on the West Slope, while most of the people are on the East Slope. Thus it makes sense that municipal use is best documented in Metro Denver and its basin, the South Platte. The less documented basins also have fewer people, leading to less development.

Additionally, because most collections relate to multiple basins, the interconnectedness of the collections and of the state's water activities is apparent. Where collections relate to just one basin, they tend to document organizations rather than individuals and to be based in the South Platte. Besides having the highest population, the South Platte Basin is also where the Water Resources Archive is located, possibly giving the area greater prominence.

Interconnectedness is also shown in the large number of collections related to other western states and other countries. People, especially engineers, develop an expertise and get hired to consult around the world, which extends the reach of Colorado's water knowledge.

The small number of collections touching on Native American tribes and their long-standing water issues is an area needing further investigation. Of the four such collections, two are from outsider perspectives, and two document people working with the tribes. Although it is important to include diverse perspectives, the archive should investigate whether tribes are preserving their

own water collections or placing them in other repositories. If not, forming partnerships to pursue this may be appropriate.

Though most difficult to analyze, the subject categories prove most interesting. The diversity among the subject areas indicates the multilayered nature of the archive. At first glance, a focus on hydrology may be assumed, but collections documenting economics and conservation demonstrate multidisciplinarity. Because several of the thirteen subject categories contain few collections, this points to additional collecting possibilities. The dominant subject areas—management, engineering, and agriculture—are three of the most widespread water professions.

Though no repository can collect comprehensively, the collection analysis clearly shows room for improvement across all the categories. In terms of collection gaps, the general absence of women and minorities was known before the analysis. In addition to more diverse populations, some organization types could be better represented, including businesses (especially other than engineering) across the state and interest groups outside the South Platte Basin. Water use overall is insufficiently documented, but especially in terms of environmental, recreational, and industrial uses. Also little documented are West Slope watersheds tributary to the Colorado River mainstem as well as Native American tribes. The subjects of water quality, conservation, recreation, wildlife, and education could all be better documented, but these at least are present. Other subjects yet to be documented in any substantial way include wastewater, energy, and art.

Discussion

Although a collection analysis creates a categorized intellectual framework for a repository, the quantitative results are not the end point, and additional factors need to be considered. A collection analysis does not show the thoroughness of documentation, because quantity does not correlate when a collection covers multiple subjects or places. Similarly difficult, collection quality is a subjective assessment that changes with research interests; yet, even a rough look at quality can provide a more complete picture of a repository's strengths and weaknesses. For the Water Resources Archive, the lower-quality collections are not concentrated in any one area, so they do not skew the identified strengths or weaknesses; most are small collections accepted either as stepping stones to future donations or to represent certain individuals rather than have nothing at all.

Furthermore, the collecting landscape must be considered. As mentioned, the Water Resources Archive formed after several repositories already held important water-related collections, thus possibly creating false gaps in the

archive that will never be filled. Beyond what exists elsewhere, some documentation of significant activities, people, or institutions may never have been created or saved. As Francis X. Blouin and William G. Rosenberg wrote, " . . . archivists must work within a particular universe of documentation, and make selections only from these materials. How that universe is constituted depends on the social, political, and cultural forces that encouraged the creation of the records in the first place."[36] The forces mentioned can also discourage records creation and retention, as may be the case for minority groups, grassroots organizations, or certain water professions. However, archives can also create documentation, in particular through oral history programs, as the Water Resources Archive did in partnership with CSU's Public Lands History Center following widespread devastating floods in 2013.[37]

The other explanation of gaps in the collections is the archivist's failure in exploring the "universe of documentation" to find appropriate materials and make connections with diverse people and organizations. For the Water Resources Archive, the sole archivist networks extensively with the Colorado water community—at least those who attend conferences and events—but more can be done to connect with the less mainstream constituents and to go farther afield. Thus, the "silences" in the archive, if not already addressed by other institutions or impossible to fill by a dearth of documentation, could be filled by future collecting specifically targeted to preserve more diverse voices.[38]

This thorough collection analysis of the Water Resources Archive reveals that documenting Colorado water history means the majority of collections reflect the mainstream historical arc, as told above, but other narratives matter and are included, if not yet adequately. Though white men, working in areas of water management, engineering, and agriculture, mainly in the South Platte Basin dominate the archive's collections, all basins of the state are documented, numerous subjects are represented, and women are present in a variety of roles, including professional, secretarial, and spousal. Though Colorado's water history began with Native Americans and Hispanics, Euro-Americans have dominated the historical arc since settlement. This explains but does not excuse the general absence of minorities in the collections.

These findings align with Terry Cook's urging of "archives reflecting multiple voices, and not by default only the voices of the powerful, an archival legacy shaped by an appraisal respecting diversity, ambiguity, tolerance, and multiple ways of archival remembering, celebrating difference rather than monoliths, multiple rather than mainstream narratives, the personal and local as much as the corporate and official."[39] The findings also mesh with Linda Henry's advocacy for special-subject repositories to collect papers not just of the elite but the "entire range of socioeconomic classes": "women, minorities, working people, and the poor," "ordinary people," and "the anonymous," as well as her

encouragement for contemporary collecting and inclusion of nonprint materials.[40] Though not specifically assessed in the analysis, various collections, such as those of grassroots groups and ditch companies, document ordinary people, the anonymous, and working people such as farmers, secretaries, and community organizers.

Beyond using this collection analysis for refining appraisal and acquisition activities or collecting policies as discussed in archival literature, such a study has broader application as well. It can not only correct incorrect assumptions the archivist may have acquired over the years, but also convey the information to current and future employees.[41] Such information would be of assistance to successors, new hires, and administrators.

The analysis results can also be used in reference work, selection for digitization, and outreach. Data-driven knowledge can help the Water Resources Archive more effectively present collection information to researchers, such as in using geographic or subject categories to create pathfinders or LibGuides. Also, more precise geographic and subject headings should be included consistently in finding aids or collection summaries for improved search results. Likewise, the categories can guide digitization decisions to be either broadly representative across categories or thorough in one.[42] A similar approach could be used to promote collections to defined audiences.

Furthermore, the collection analysis provides transparency to researchers, especially historians, who, it has been argued, should better know the repositories they are using, not just the collections, to understand what is there, why it was selected, and how it got there.[43] The formation of archives and the collections therein involve politics and choices, and researchers gain a better idea of how to interpret documents, as well as omissions, if they have access to repository-level information.

Though it is unusual for an archivist who has had a role since the formation of a repository to perform a collection analysis on a small number of collections, the benefits, perhaps more than the numeric results, come in establishing an intellectual framework for the archive and a view toward different collecting directions.[44] Though these can shift over the years with the same or different archivists and administrators, the framework can be easily maintained as future collections are acquired or as unprocessed ones are organized and described to reveal hidden contents.

Conclusion

All water is local. Environment, people, and institutions form its history, so archives documenting water history must examine it from the local context, paying attention to the mainstream history as well as to diverse narratives. In

Colorado, this is driven by being the Headwaters State, simultaneously split and unified by the Continental Divide; by being a leader in water law, science, and administration; and by battles over scarce supplies. For a Colorado water archivist, the local context requires listening to what the water community wants and expects. Responsible collecting demands going beyond assumptions and expectations to seek all "sides" of issues, events, and projects; competing basins and politics; and the supply/use equation—even, and especially, unpopular voices or those on the losing side.

During fourteen years of acquiring its first hundred collections, the Water Resources Archive has met its mission in capturing unique and important documentation to serve the Colorado water community as well as researchers. It will continue to build upon the established foundation, evaluating identified gaps and addressing them as prioritized. Future collecting may morph in terms of places, subjects, diversity, and material types, and decisions will be better informed from the solid base of the collection analysis. From ditch companies to grassroots groups, from water lawyers to civil engineers, from droughts to floods, the organizations, people, and events already documented are a start at reflecting the statewide societal uses and protections of Colorado waters.

Indeed, the work of the Water Resources Archive is just beginning. Water-related concerns are increasingly urgent in the West and around the world, with issues such as severe droughts, safe and sufficient drinking water, and use for fracking becoming more prominent, contentious, and even desperate. In starting her discussion of special-subject repositories, Linda Henry cited Gerald Ham's caution about archives becoming "weathervanes of shifting interest," "moved by the changing winds of historiography." Given the global evidence, interest will not shift away from water and understanding its past. To cite Ham's other famous advice for archivists, the collections we acquire must "hold up a mirror for mankind" to help "people understand the world they live in."[45] What better mirror than nature's original reflecting glass, water?

Appendix A

Collection Development Policy, Water Resources Archive

19 March 2013

The primary mission of Colorado State University's Water Resources Archive is to preserve, provide access to, and promote documentation of the study and development of water resources in Colorado. The Archive collects written, digital, audio, and visual material created by individuals and organizations instrumental in water resources issues in Colorado in order to document specific events and broader societal trends as well as the general history of water in Colorado. The Archive also collects materials from or about other western states that have a close relationship to Colorado's water issues.

The collections in the Water Resources Archive consist of historical materials documenting all aspects of Colorado's water, including legal, engineering, agricultural, environmental, recreational, and more. The collections also document contributions made by Coloradans to water activities, in the state and beyond. Emphasis is placed on primary source materials having long-term research and documentary value for the Colorado water community. Materials concerning important individuals/organizations which go beyond the subject of water will be accepted in limited quantities.

The Archive enables researchers to study Colorado's water history as comprehensively as possible. All holdings are accessible to the general public, except those restricted by federal and state law or university policy; preservation concerns or reasons of confidentiality; or as a condition of gift established by a donor.

Collecting areas of specific interest within the Water Resources Archive include:

- Ditch and irrigation companies/districts
- Engineering
- Water law and policy
- Environment and ecology
- Groundwater
- Recreation
- Water-related associations, companies, districts, and agencies which do not have in-house archives functions or are defunct

Materials not accepted include:

- Collections that have no relationship to Colorado's water or Colorado State University
- Large quantities of common textbooks
- Large quantities of sizeable three-dimensional objects
- Collections that have been made accessible via other organizations or agencies. Exceptions may be made for parts of the collection that are deemed of special historical significance.

Appendix B

Collection Analysis Key

Basic Data	
Code	four-letter collection code assigned upon accessioning
Title	collection title
Collection type	personal papers, organizational records, artificial, oral history
Personal:Gender	m / f (if not personal papers, give x)
Personal:Ethnicity	Caucasian / other (if not personal papers, give x)
Organizational:Type	business, special district, ditch/reservoir company, education/research, government agency, interest group, professional/trade association (if not organizational records, give x)
How acquired	existing, offered, solicited, created
Date first received	date first accession received (yyyymm)
Processed	y/n (has finding aid)
Unprocessed accretion	y/n (assign only for processed collections if unprocessed accretion exists)
Date range	collection's date span
Portion digitized and online	y/n
Includes media items	y/n
Includes digital items	y/n
Linear feet	number of linear feet (omit "+" which indicates unmeasured oversize)
Gigabytes	number of GB for born-digital collections

Geography	Does collection have a geographical component? y/n—if n, give next set x's	
Basins:	North Platte	y/n
	South Platte	y/n
	Arkansas	y/n
	Rio Grande	y/n
	San Juan/Dolores	y/n
	Gunnison	y/n
	Colorado	y/n
	Yampa/White/Green	y/n
	Metro Denver	y/n

	Dominant basin	choose from above list
Political:	Colorado	y/n
	Tribal (in Colorado)	y/n
	Other western states/basins	y/n
	Other non-western states/ basins	y/n
	International	y/n

Supply	Does collection document water supply? y/n—if n, give next set x's
Surface water	y/n
Groundwater	y/n
Atmospheric water	y/n (including rain, snow, and floods caused by abundant precipitation)

Use	Does collection document water use? y/n—if n, give next set x's
Agriculture	y/n
Municipal use	y/n
Industry	y/n
Recreation	y/n
Environment	y/n

Subject	What are collection's primary and secondary subjects? Use list below. If no secondary subject, give x.
	Agriculture
	Conservation
	Economics
	Education
	Engineering
	Environment
	Law
	Management
	Policy
	Recreation
	Science
	Water quality
	Wildlife

Notes

[1] The consortial Western Waters Digital Library demonstrates that universities across the West collect water-related materials in their archives or libraries, but none in a focused way as the two repositories mentioned. See http://westernwaters.org/.

[2] Originally called the Water Resources Center Archives. See https://en.wikipedia.org/wiki/Water_Resources_Collections_and_Archives for additional information. Interesting to note for comparison is that the WRCA has approximately two hundred archival collections after more than fifty years of collecting.

[3] Lawrence B. Lee, "Water Resource History: A New Field of Historiography?," *Pacific Historical Review* 57, no. 4 (1988): 457.

[4] Donald J. Pisani, "Deep and Troubled Waters: A New Field of Western History?," *New Mexico Historical Review* 63, no. 4 (1988): 312.

[5] Pisani, "Deep and Troubled Waters," 331.

[6] Jamie Linton, *What Is Water? The History of a Modern Abstraction* (Vancouver: UBC Press, 2010), 63. See also International Water History Association, "About Us," http://www.iwha.net/membership/about-iwha.

[7] Articles include David A. Clary, "The Archivist and the Human Environment," *The Midwestern Archivist* 6, no. 1 (1981): 35–45; Candace Loewen, "From Human Neglect to Planetary Survival: New Approaches to the Appraisal of Environmental Records," *Archivaria* 33 (Winter 1991–92): 87–103; Stephen C. Sturgeon, "A Different Shade of Green: Documenting Environmental Racism and Justice," *Archival Issues* 21, no. 1 (1996): 33–46; Todd Welch, "'Green' Archivism: The Archival Response to Environmental Research," *The American Archivist* 62, no. 1 (1999): 74–94.

[8] Though a slight stretch, the most relevant article is D. Theodore McAllister, "Collecting Archives for the History of Science," *The American Archivist* 32, no. 4 (1969): 327–32. Most articles on special-subject repositories concern women, minorities, or religion.

[9] Cynthia Barnett, *Rain: A Natural and Cultural History* (New York: Crown Publishers, 2015); Wallace J. Nichols, *Blue Mind: The Surprising Science that Shows How Being Near, In, On, or Under Water Can Make You Happier, Healthier, More Connected, and Better at What You Do* (New York: Little, Brown and Company, 2014); Linton, *What Is Water?*

[10] For the most complete book on Colorado water history, see Stephen Grace, *The Great Divide* (Guilford, Conn.: TwoDot, 2015). The book is a companion to the documentary film of the same title by Havey Productions.

[11] Mark Stein, *How the States Got Their Shapes* (New York: Smithsonian Books/Collins, 2008), 40–41.

[12] Daniel Tyler, *Silver Fox of the Rockies: Delphus E. Carpenter and Western Water Compacts* (Norman: University of Oklahoma Press, 2003), 78.

[13] See Tyler, *Silver Fox of the Rockies* and Guide to the Papers of Delph E. Carpenter and Family, http://lib.colostate.edu/archives/findingaids/water/wdec.html.

[14] Mead later became Wyoming's first state engineer, professor at the University of California, Berkeley, consultant in Australia, and commissioner of the U.S. Bureau of Reclamation, which named the reservoir behind Hoover Dam for him. See James R. Kluger, *Turning on Water with a Shovel: The Career of Elwood Mead* (Albuquerque: University of New Mexico Press, 1992).

[15] Fall 1991 brought a transition from outgoing director Neil Grigg to incoming director Robert Ward. The organization's name has been shortened to Colorado Water Institute.

[16] Joel Rutstein, letter to Mike Culbertson et al., February 25, 1992, Records of the Colorado Water Resources Research Institute, Water Resources Archive, Colorado State University, 60–23; Lindsey Middleton, "Colorado Water Institute, Fifty Years of Research, Education, and Outreach: An Interview with Norm Evans, Neil Grigg, Robert Ward, and Reagan Waskom," *Colorado Water*, August 2015, 4–12. The History Department transferred the CAA (now Agricultural and Natural Resources Archive) to the libraries in 2004.

[17] Just one building among many affected, the Morgan Library basement filled with eight feet of water, damaging the bound journal collection as well as 425,000 books, requiring years of recovery. Luckily, a recent building renovation had relocated the archives department from the basement to the second floor, providing more space—and protection from floods.

[18] The initial funding included a temporary archivist position, which eventually became a line in the state budget.

[19] These include History Colorado, the Denver Public Library, the University of Colorado Boulder, and Fort Lewis College, among others.

[20] The department began keeping thorough accession records in 2003.

[21] Having one archivist involved with all acquisitions from day one provides a unique opportunity in the analysis of an entire archive. Though some bias may enter due to the author's lack of distance from the topic, objectivity is the goal.

[22] See Patricia J. Rettig, "An Integrative Approach to Archival Outreach: A Case Study of Becoming Part of the Constituents' Community," *Journal of Archival Organization* 5, no. 3 (2008): 31–46, for details on the archive's outreach.

[23] For an interim status report, see Patricia J. Rettig, "'The Beginning of Everything': A Five-Year Report on the Colorado State University Water Resources Archive" (Fort Collins: Colorado State University, 2006), http://hdl.handle.net/10217/38192.

[24] Linda Henry, "Collecting Policies of Special-Subject Repositories," *The American Archivist* 43, no. 1 (1980): 57–63.

[25] For example, for Chips Barry, Denver Water manager for nearly twenty years, the archive has documentation of his early work as a lawyer in Micronesia and Alaska, personal letters, files on hobbies, and health records, none of which relates to Colorado water, but shows the formation and "inner life" of an important water leader. See Guide to the Papers of Hamlet J. "Chips" Barry, III, http://lib.colostate.edu/archives/findingaids/water/whjb.html. Cook encourages this in Terry Cook, "'We Are What We Keep; We Keep What We Are': Archival Appraisal Past, Present and Future," *Journal of the Society of Archivists* 32, no. 2 (2011): 181.

[26] Judith Endelman, "Looking Backward to Plan for the Future: Collection Analysis for Manuscript Repositories," *The American Archivist* 50, no. 3 (1987): 341. For additional writings on collection analysis, see Gloria A. Thompson, "From Profile to Policy: A Minnesota Historical Society Case Study in Collection Development," *The Midwestern Archivist* 8, no. 2 (1983): 29–39; Christine Weideman, "A New Map for Field Work: Impact of Collections Analysis on the Bentley Historical Library," *The American Archivist* 54, no. 1 (1991): 54–60; Mark A. Greene and Todd J. Daniels-Howell, "Documentation with an Attitude: A Pragmatist's Guide to the Selection and Acquisition of Modern Business Records," in *The Records of American Business* (Chicago: Society of American Archivists, 1997), 161–229.

[27] Colorado Water Conservation Board, "Colorado's Water Plan," 2015, https://www.colorado.gov/pacific/cowaterplan/plan. The Republican River is included here in the South Platte River Basin.

[28] Endelman, "Looking Backward to Plan for the Future," 343. Also, see Frank Boles, *Selecting and Appraising Archives and Manuscripts*, *Archival Fundamentals Series* (Chicago: Society of American Archivists, 2005), 100–101.

[29] For guidance, two water resources thesauri were consulted; both proved outdated and not granular enough in their categorization. See United States Department of the Interior and Smithsonian Institution, Science Information Exchange, *Water Resources Thesaurus: A Vocabulary for Indexing and Retrieving the Literature of Water Resources Research and Development* (Washington, D.C.: Supt. of Documents, U.S. GPO, 1966); United States Bureau of Reclamation, *Thesaurus of Water Resources Terms: A Collection of Water Resources and Related Terms for Use in Indexing Technical Information* (Washington, D.C.: Supt. of Documents, U.S. GPO, 1971).

[30] Before finalizing the collection analysis key, it and a few sample records were emailed to two water archivist colleagues for feedback. Both archivists seemed to look at the categories according to their own contexts and potential usage. This indicates that while creating a template for collection analysis across repositories, even in the same subject area, may be desirable, it may be impossible given local contexts and goals.

[31] An unexpected finding is the discovery that some finding aids lacked geographic or subject headings that would have been helpful in the analysis, which also means the same information could be useful to patrons.

[32] Richard Cox, "An Analysis of Archival Research, 1970–92, and the Role and Function of the *American Archivist*," *The American Archivist* 57, no. 2 (1994): 285.

[33] For an explanation of ditch companies and a study of such collections, see Patricia Rettig, "Tracing the Source of Irrigation: An Examination of Colorado Ditch Company Collections in Archival Repositories," *Journal of Western Archives* 3, no. 1 (2012), http://digitalcommons.usu.edu/westernarchives/vol3/iss1/1. The archive's governmental collections largely fall outside of state or national archives' interests.

[34] See the Colorado State Water Plan, cited at note 27, for evidence of this concern.

[35] Grace, *The Great Divide*, 57.

[36] Francis X. Blouin and William G. Rosenberg, *Processing the Past: Contesting Authority in History and the Archives* (Oxford: Oxford University Press, 2011), 152.

[37] See Guide to the Northern Colorado Flood Oral History Collection, http://lib.colostate.edu/archives/findingaids/water/wncf.html.

[38] Blouin and Rosenberg, *Processing the Past: Contesting Authority in History and the Archives*, 118.

[39] Cook, "'We Are What We Keep; We Keep What We Are,'" 181–82.

[40] Henry, "Collecting Policies of Special-Subject Repositories," 59.

[41] Boles, *Selecting and Appraising Archives and Manuscripts*, 99–100.

[42] Though on microfilming, this can be translated to digitization: Margaret Child, "Selection for Microfilming," *The American Archivist* 53, no. 2 (1990): 254.

[43] See Blouin and Rosenberg, *Processing the Past: Contesting Authority in History and the Archives*, 208; and Terry Cook, "The Archive(s) Is a Foreign Country: Historians, Archivists, and the Changing Archival Landscape," *Canadian Historical Review* 90, no. 3 (2009): 533.

[44] Endelman, "Looking Backward to Plan for the Future," 352.

[45] Henry, "Collecting Policies of Special-Subject Repositories," 57; F. Gerald Ham, "The Archival Edge," *The American Archivist* 38, no. 1 (1975): 13.

ABOUT THE AUTHOR

Patricia J. Rettig joined the Colorado State University Libraries in March 2000. She began working on the Water Resources Archive in July 2001 and is now head archivist for it. Rettig earned her master of library science from the University of Maryland, College Park, in 1998.