

**A BRIEF SURVEY
OF WATER ALLOCATION AND ADMINISTRATION
IN NEW MEXICO**

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In this paper I explore the questions, what makes water allocation in New Mexico so difficult? And, on what basis is water allocation done? I discuss the problem from the perspective of the entire state, with some comparison to the rest of the western United States. I'll begin by describing some of the physical and hydrological considerations that make water allocation difficult, then move on to legal considerations that govern the allocation (and reallocation) process.

Physical and Hydrological Considerations

In New Mexico water is a scarce resource. This is true in the common sense of the word *scarce*, which is to say that there isn't much of it. And it is evident to anyone who has visited the lands west of the 100th parallel. It is also true in the sense in which economists use the word *scarce*. Here *scarce* refers to any commodity for which there is greater demand than supply.¹ The fundamental reason that water allocation in New Mexico is difficult is that demand far outstrips supply and is growing.

Water is a special type of natural resource because it is so essential to life. Unlike ores, timber, and other natural resources for which there are substitutes, there is no substitute for water; without water neither human, animal, nor plant can long live. At the same time, in addition to its life-sustaining qualities, water is used for a vast array of commercial activities and so has a role not unlike that of other natural resources. This special characteristic of water gives it a hybrid status: not entirely a marketable commodity; not solely a public good.²

When the rights to all of the water from a particular source have been allocated, the source is said to be fully appropriated. At this point in time virtually all surface water in New Mexico is considered fully appropriated and many watersheds are actually over-appropriated.³ In theory this should mean that any time water is put to a new use, the same quantity reserved for another use will be retired to offset it. In a system where the demand for water is presently increasing, this leads to competition. And in a system where water rights have not been fully quantified, it can lead to the draining of aquifers, destruction of watersheds, lowering of water tables, and other hydrological disasters.

One of the major difficulties in allocating surface water is the variability of supply from season to season and year to year. Studies of tree rings over the past couple thousand years indicate regular cycles of drier and wetter years with precipitation varying greatly.⁴ The amount of water available in a dry year may be a small fraction of that available in a wet year. How should water be allocated in a dry year? Who should get the surplus in a wet year? And is there some way to even out the supply of water? I'll discuss the first two questions in more detail in the section on legal considerations. Regarding the third question, the 20th century approach has been to construct dams and reservoirs so that surpluses can be saved to cover future shortages. More recently, with the Ground Water Storage and Recovery Act, the State has authorized the use of aquifers to store water and specified the standards for doing so.⁵

Water allocation is complicated by several considerations about surface water to groundwater interactions. Often there is some uncertainty about the quantity of groundwater that is available from an aquifer. While it is possible to monitor the rate at which the water is drawn down, the size of the aquifer is not always known precisely. And as the water level decreases, the amount of water that can actually be extracted may be less than the entire aquifer, due to porosity and other hydrological constraints.

Often surface water and groundwater supplies interact. If the groundwater source is recharged by seepage from the surface water source, then pumping groundwater will impact the water table and diminish the amount of surface water available. This fact has several implications for water allocation. Historically the interactions between the two sources have been poorly understood. Some aquifers are directly replenished by surface water seepage; others are not. The rate at which a groundwater source is replenished has implications for how important it is to manage the interactions between the two.

Prior to 1963, when the State recognized the need for conjunctive management of surface and groundwater, the two types of water resource were administered separately, such that the water drawn from the ground wasn't accounted as part of the surface water allocation.⁶ Emlen Hall in *High and Dry* describes how the Roswell artesian groundwater regulations passed in the late 1920s failed to take into

account surface-groundwater interactions. This led to massive overpumping and eventually lowered the water table of the Pecos river.⁷

Finally, there may be a considerable delay between when pumping takes place and when its effects on the surface water supply become evident. This makes it hard to show the true effect of groundwater pumping on the surface water source; difficult to know how much pumping can be allowed without harming the rights of the surface water users.⁸

The background to the mega-lawsuit, Texas v. New Mexico, filed in 1974, illustrates the above points. In the end, New Mexico was judged to have underdelivered water to Texas over a period of more than 25 years. But the lawsuit itself dragged on for 15 years. In large part this is because when the 1948 Pecos River Compact was drafted, the interactions of surface and groundwater were poorly understood, and the accounting system laid out in the compact didn't provide a clear way to determine who should have how much water. In addition, at that time surface and groundwater were administered separately, but well-drilling activities in the Roswell area had huge impacts on the level of the water table and thus on the amount of water that reached both the Carlsbad Irrigation District in New Mexico and the Texas state line.⁹

In summary, several physical and hydrological considerations make water allocation difficult. First, there is the reality that demand exceeds supply. Second, the supply is uncertain, both for surface and for ground water. Surface water availability varies greatly from year to year; the amount of water that can practically be drawn from an underground source is not completely known. Finally, drawing groundwater from one source affects not only other users of that source, but the surface water supply as well, in ways that are hard to quantify. There is often considerable delay between pumping and surface water effects.

Legal Considerations

It is hard enough to manage the supply of water so that it gets to where it is needed at the right time, and ensure that the balance between surface and ground water is administered in a way that

doesn't destroy the watersheds. In addition, those who administer water have to contend with a plethora of legal constraints under the jurisdiction of multiple political entities. Before getting into the detail of the various entities, let me begin by explaining in very general terms how water rights are determined.

The Prior Appropriation System

Water rights in New Mexico are based on the system of prior appropriation. This is in contrast to the eastern half of the country where the riparian system predominates. The riparian system prevails in wetter regions and prior appropriation in the drier West.¹⁰

Under the riparian system landowners whose land is adjacent to a surface water source have the right to withdraw water for any reasonable use. Those whose land is not adjacent have no riparian rights; they would typically get their water from a groundwater source. In times of shortage, the riparians are to "share the shortage" by everyone reducing their use in proportion to their rights. The details of the riparian system vary from state to state. Typically, there is also a de facto recognition of a hierarchy of uses with a preference for "natural" uses, which include "drinking, washing, and watering small gardens for a few livestock."¹¹

By contrast drier regions of the country have usually adopted a prior appropriation system whereby anyone may withdraw water from a surface water source, even if the place where they will use the water is some distance away from the water source. When there is more demand than there is supply, the users with the longest history of using the water get priority. Those who began using water later, junior rights holders, may only use water after senior rights holders have taken their fully allotted share. Note that the right is not a possessory right, but a right to use a certain quantity of water for a particular purpose.¹²

A key concept in the prior appropriation system is the idea of beneficial use. In many cases a water right is only maintained as long as an appropriator puts the water to beneficial use, which has

been pretty broadly defined to include not only irrigation and domestic use, but also industrial and recreational uses.¹³

In New Mexico at the present time, under most circumstances a water user must apply for a water right permit to the State Engineer. The application will specify the amount of water diverted, the amount of water consumed, the point of diversion, the specific use to which the water will be put, and the land where the water will be used. Since most basins are fully appropriated, the applicant will actually be applying for a water right transfer from some other source to the new water right.¹⁴

The amount of water diverted and the amount of water consumed together determine the return flow of water to the source. Each type, diversion and consumption, affects the available water in the river. The amount diverted reduces the flow from the diversion point onward. Amount diverted minus amount consumed gives the amount of water that will be returned to the river—add it back in at the point of return . The returns become usable wet water for downstream users. This is important because some conservation plans reduce return flows without reducing diversions so that the net effect on a river is *less* water available downstream.

Adjudication of Water Rights

Lack of clarity about water rights priorities is one of the key factors that make water allocation in New Mexico difficult. By contrast, Colorado is one of the few states which has fully adjudicated water rights. When a Colorado user wants to appropriate or transfer a water right, the State knows exactly who has a right to how much water and how much water must be retired in order to approve a new permit. The permit applicant knows where their water right fits into the seniority schema and hence how reliable a right they are going to have. In New Mexico at the present time, several basin adjudications are underway and more are scheduled; however, the majority of the state has not been adjudicated at this time.¹⁵

For most of New Mexico, the priority has not been established. This means that as a practical matter the State Engineer cannot make a priority call because it is not known who are the senior rights

holders, nor in some cases how much water each holder is entitled to. Adjudication requires intervention of the courts, is very expensive (in the millions of dollars) and time-consuming (on the order of many years). An additional complicating factor is that in many regions of the state, the most senior rights holders are tribes or pueblos whose water rights have not been quantified and which are not even under the jurisdiction of the State of New Mexico. Tribal and pueblo water rights are subject to federal jurisdiction.¹⁶

A Plethora of Jurisdictions

Depending on the water user and the location under consideration, New Mexico water rights are variously governed by federal, state, and local entities, as well as interstate compacts and international treaties. In the following section I shall provide a very general description of the different entities and the laws that govern them. Much of the material is from “Overview of Water Law Applicable to The Middle Rio Grande Water Planning Region”. Although this paper is specific to the Middle Rio Grande planning region, most of the material applies to New Mexico as a whole.

Administration at the State Level

The State of New Mexico, through the Office of the State Engineer, has responsibility for administration and regulation of the waters of the state. This includes approval of water appropriations, permitting and licensing of water rights and transfers, and enforcement of the Water Code. The State Engineer has jurisdiction over both surface and ground water and is charged to maintain “an equilibrium between ground and surface water.”¹⁷ The Interstate Stream Commission, an agency of the Office of the State Engineer, ensures compliance with interstate compacts, manages the state’s water supply, and leads water planning within the state.¹⁸

New Mexico has recognized the interaction between surface and groundwater since the early 1960s, ever since the City of Albuquerque v. Reynolds case. This case established that whenever an aquifer is hydrologically related to a surface water source, in this case the Rio Grande, granting groundwater rights shall require retirement of an equal amount of water rights—surface or ground—to

offset the new appropriation. In other words, the two water sources are properly regarded as one and administered as such.¹⁹

The State Engineer's decision regarding a water right permit is based on four considerations: 1) if the request is for a new water right, that there is unappropriated water available in the basin (this does not apply to water right transfers); 2) that the new or transfer right will not impair other water rights; 3) that the permit will not violate the conservation of water; and 4) that the change is not detrimental to public welfare.²⁰ Interestingly, the State Engineer has so far refrained from defining public welfare.

The State Engineer is responsible for regulating and permitting groundwater rights. There are two principal types of groundwater permits. Domestic wells may be used to irrigate up to one acre of land, water livestock, and provide for household needs. A domestic well permit allows up to 3 acre-feet per year.²¹ Other groundwater permits provide for wells dug for irrigation, municipal and industrial uses, including in some situations development of a well to supplement a surface water permit. A supplemental well may be needed in years of low surface water flow to provide for irrigation needs.²² Although domestic wells impact the water table, to date the State Engineer has not required retirement of other water rights in order to approve a new domestic well. In some areas this is leading to a lowering of the water table.²³

Watershed boundaries and political boundaries seldom coincide, which leads to a variety of administrative problems. For instance, New Mexico encompasses a tiny corner of the Colorado River basin. This makes New Mexico a party to the complex negotiations among the states sharing that watershed. For instance, the State Engineer designated 16 water planning regions within the state, of which for example, several share the Rio Grande and some straddle tributaries of the river. One region will attempt to solve its water shortages by planning to purchase water from an upstream or downstream region without taking into account the effects of that plan on the sister region. Or, a region

may desire to transfer water from one basin to another, even though the transfer may impact the health of the donor watershed.

Irrigation and Conservancy Districts

Irrigation and conservancy districts developed about a century ago as part of a move to improve western water management. Historically, irrigation districts were part of the program coming out of Washington under President Theodore Roosevelt that resulted in the building of federal dams and reservoirs under the auspices of the Bureau of Reclamation. The districts exist to provide irrigation water to members and may also provide hydroelectric power, drainage, flood control, and other services. An irrigation district is allowed to lease water to outside parties and may also acquire its own water rights.²⁴ The Carlsbad Irrigation District, which featured prominently in Texas v New Mexico (1974), was developed to manage releases of Pecos River water from storage and prevent floods in times of oversupply.

Conservancy districts were created under the New Mexico Conservancy Act, also for flood control and irrigation, specifically to “promote the welfare of the district and its inhabitants.”²⁵ Individuals who are members of the conservancy district may continue to own their own water rights; however, the district may also acquire water rights of its own. Unlike other types of water rights, the district’s water rights cannot be discontinued for non-use or forfeiture the way an individual’s water rights can.²⁶

The Middle Rio Grande Conservancy District (MRGCD) is a prominent example of a conservancy district. Its water rights also serve as an example of the variety of types of water rights and jurisdictions operating in New Mexico. There are seven different types of water rights within the MRGCD.

1. Individual pre-1907 diversionary water rights. Because they are so old, pre-1907 rights are not governed by the State Engineer.
2. Individual rights established between 1907 and 1927, prior to the founding of MRCGD.

3. MRGCD rights to use water on land reclaimed by MRGCD from the Rio Grande.
4. Aboriginal pueblo water rights on portions of pueblo land included in MRGCD. These rights have the oldest priority dates.
5. Groundwater rights to wells. In 1956 the State Engineer obtained jurisdiction over the underground waters of the Rio Grande basin. These come in two sub-types, pre-1956 and post-1956 rights.
6. San Juan-Chama purchase water rights. These result from the 1963 contract with the Bureau of Reclamation for 20,900 af per year of water from the Colorado River basin.
7. More than 198,000 af of storage rights at El Vado reservoir. These are used to equalize the flow of water to MRGCD members.²⁷

Administration at the Local Level

Acequias are corporations managed by a community to convey water from a nearby stream to the various water rights holders. The parciantes on the acequia each have their private water rights; the acequia is simply the conveyance means for the water.²⁸ Since 2003 acequia associations have had the power to stop the transfer of water rights out of the association if they so desire.²⁹

Municipal utilities supply water to cities. They have the power to purchase water rights and condemn water rights. They are also able to purchase and hold unused water rights for up to 40 years.³⁰ Related entities include municipal improvement districts, county-owned utilities, county improvement districts, intercommunity water districts, water and sanitation districts, and sanitary projects, which variously provide water and sewer services, and drainage and flood control.

Mutual domestics and cooperatives are organized to provide domestic water for a group of households. They are typically fairly small and are a rural counterpart to the municipal utilities.³¹

Interstate Compacts

Interstate allocation of water has taken place by three methods: legislative allocation via congressional apportionment, judicial allocation as a result of interstate litigation, and interstate compacts.³² For example, water rights on many tribal lands date from the establishment of the reservation by Congress. The fight over Pecos River water resulted in Texas v. New Mexico.³³ New Mexico is party to several interstate compacts, including the Colorado River Compact of 1922 among the states sharing water of the Colorado River basin and the Rio Grande Compact of 1929 among Colorado, Texas, and New Mexico.³⁴

There are several advantages to approaching interstate water allocation by means of a compact, not least of which is the potential savings of time, money, and goodwill among the parties if they can work out their own agreement rather than proceeding to court. According to Jerome C. Muys who prepared a report for the National Water Commission, “. . . the chief advantage of the compact approach is its adaptability to the special, often unique needs of a particular basin.”³⁵

Determining water allocation under a compact is not straightforward, however. Consider that the allocation formulas may be fairly complicated, as in the case of the Rio Grande Compact. Second, the estimates of water supply are often unreliable. About half the existing compacts stipulate that allocations include all federal uses, which can be a significant percentage of the available water. Finally, many compacts predate the “reservation doctrine” giving priority to American Indian water rights, and so are based on an unrealistic estimate of the amount of water to be divided.³⁶

Federal Administration and Requirements

A number of types of water rights do not fall under the jurisdiction of the State of New Mexico, but rather come under federal jurisdiction. I will consider four cases here: international treaties, tribes and pueblos, environmental water uses, and other federal purposes.

International Treaties

Two treaties affect water allocation in New Mexico, the Treaty of Guadalupe Hidalgo (1848), and Treaty between the United States of America and Mexico relating to the waters of the Rio Grande (1907).³⁷

Under the Treaty of Guadalupe Hidalgo, the United States took possession of the lands of the Spanish southwest which are now part of Texas, New Mexico, Arizona, and California. The treaty has been interpreted to protect the rights to land and water that were in force at the time of the acquisition from Mexico.³⁸ By implication, the water rights granted by the Spanish or Mexican governments to individuals or entities in New Mexico have an older priority date than those granted by the State of New Mexico. In addition, the privileges and requirements incumbent on the older water rights holders may be quite different than those that pertain to later water rights holders. At present, this has as yet undetermined implications for the quantification of tribal and pueblo water rights in New Mexico.

The 1907 treaty between the United States and Mexico stipulates that the United States will deliver 60,000 acre-feet of water each year via the Rio Grande to Mexico at the international border. This agreement means that even though the Rio Grande Compact is an interstate agreement among Texas, New Mexico, and Colorado, delivery shortages may require involvement of the federal government in order to negotiate with Mexico about its water right.

Unlike some other regions of the country, some water rights in New Mexico are subject to international treaty. Water rights disputes that appear to be local to the state may in fact require the involvement of the federal government.

Federal Reserved Water Rights

At times the federal government sets aside land for specific purposes, for example, national forests, national parks, and tribal reservations. Water rights sufficient for whatever purpose the land is designated for are deemed to be reserved along with the land. These are known as *reserved* water rights. They are not created by or limited by state law and they preempt state-based water rights. The effect is to reduce the amount of water available for administration by the states.³⁹

Federal Non-Reserved Water Rights

Federal *non-reserved* rights have been created during the second half of the twentieth century. These rights derive from federal regulatory authority, apart from land.⁴⁰ A number of federal laws affect water use and quality.⁴¹ Of special importance to the allocation of water in New Mexico are the Endangered Species Act (ESA) and the National Environmental Policy Act (NEPA).

In the second half of the twentieth century the federal government began to recognize and protect the environment in the public interest. ESA lays out the requirements for such protections. In some cases the protections have created a need to preserve a certain quantity of water in streams, lakes, etc. to protect the habitat of threatened and endangered species. When a water source runs dry or nearly so, it can destroy the habitat of particular species and thus qualify as illegal “taking” of that species. Examples include the willow flycatcher and the silvery minnow.

NEPA spells out a process for evaluating the environmental effects of federal actions (projects undertaken by an agency of the federal government) and inviting public involvement in the evaluation process. Projects deemed to have a detrimental impact on some aspect of the environment may be cancelled.⁴²

Therefore, in some cases, these federal laws will mandate that surface water flows be maintained above a certain level. These new uses reduce the amount of water available for other purposes. Because they are federally mandated they effectively trump state water rights.⁴³ Like several other categories of federal rights, these rights have yet to be quantified on a case-by-case basis. And, in fact, the water right could vary according to the fortunes of the threatened and endangered species in question.

Tribal and Pueblo Rights

Typically, tribal water rights are designated as reserved rights according to what is known as the Winters doctrine. The priority date is tied to the date that Congress established each tribal reservation. A tribal right is not subject to beneficial use stipulation, and so the water right is perpetual, not subject

to forfeiture or abandonment considerations. The right is described as a quantity of water “sufficient to fulfill the purposes of the reservation of land.”⁴⁴

The situation of pueblos is somewhat different in that their water rights were recognized by the Spanish and Mexican governments prior to the Treaty of Guadalupe Hidalgo.⁴⁵ Since the pueblos had recognized water rights under Mexican Sovereignty, their right is considered a non-Winters aboriginal right with a priority date earlier than any other in New Mexico. Like the tribes, pueblo water rights are not dependent on the pueblo putting the water to use, and the quantity must be enough for both present and *future* uses.⁴⁶ This and other decisions about pueblo rights have come out of the ongoing case State of New Mexico v. Aamodt, et. al.⁴⁷ Some pueblos have reserved rights in addition to their non-Winters aboriginal rights, which are allocated like other tribal rights.

The biggest difficulty from a water allocation perspective is that the quantity of the tribal and pueblo rights has not yet been determined. Particularly in the case of the pueblos, this prevents the state from setting priorities for water rights for everyone else. It also means that resolution of disputes about water rights and water uses (as well as water quality, which is outside the scope of this paper), when they involve tribes or pueblos, is beyond the scope of the State of New Mexico.

Overlapping Boundaries

Another complexity to water allocation and management appears at the intersection of hydrological and legal considerations. Political boundaries seldom match watershed boundaries. At the interstate level, New Mexico shares watersheds with six other states on the Colorado Basin. It shares the Rio Grande watershed with Colorado, Texas, and Mexico. At the intrastate level, administration of water by region causes overlap among many regions with consequent struggles among regions. For example, Mexico, New Mexico, and Texas share an aquifer in the El Paso area. Even though overpumping is depleting the aquifer, there is little incentive for any one entity to reduce their use because the water will simply be used by the other entities. The problem is also evident when one region wants to solve its water shortage by importing water either from another basin in the same

region, or by transferring water rights from another region. These situations lead to both political and hydrological problems.

Conclusion

The preceding survey shows the variety of ways in which water is allocated and administered in New Mexico. While New Mexico is designated as a prior appropriation state, several categories of water rights do not derive from this doctrine, among them federal reserved rights; federal non-reserved rights (including new uses created by ESA); and aboriginal rights of pueblos obtained while governed by Mexico and subsequently recognized by the United States. The state, which in many respects has primary jurisdiction over water allocation, is hampered by requirements imposed at the federal level.

Many of the federal rights have yet to be quantified, although they effectively hold the most senior priority. Among water rights administered by the State Engineer, most have been quantified, but few have been prioritized. The cost to quantify and prioritize these rights is extremely high.

The State Engineer governs many of the water rights in the state. But even this subset of rights is far from monolithic. The description of the seven different types of water rights in the MRGCD illustrates this situation (see pp.10-11). Pre-1907 water rights are *not* administered by the State Engineer. MRGCD manages water permitted under various types of individual water rights which are subject to the beneficial use criteria; and other Conservancy rights which are not. Finally, there are the pueblo rights which are not subject to state regulation.

Then there is the question of allocation. The quantity of available water varies over time, and the priority of rights is unknown. Upstream water users tend to have water even in times of shortage while downstream rights holders feel the pinch even though they may have senior rights.⁴⁸ The point of diversion and the percentage of return flows greatly affect the amount of water available at any particular point in the water system adding additional complexity to the question of who may divert how much water and from where. Add in the often-delayed effects of groundwater pumping and the problem begins to boggle even the most intelligent minds.

Meanwhile, population growth increases the need for water by cities which typically hold junior water rights. The State Engineer has recognized public welfare as a criterion for allocating water. Although public welfare has not been defined specifically, it reflects the commonly held perception that there is a social good that goes beyond the individual legal right to a quantity of water. Few would want to deprive any person of the right to a minimum quantity of water for domestic purposes. And some individuals and entities, including to some extent the federal government by means of ESA, extend that right to every species. All of these considerations restrict and modify application of the prior appropriation doctrine to water rights in the state. They also make water allocation a complex and costly process.

In this discussion I have reviewed the wide variety of entities that manage water and some of the rules that govern each. I have presented some of the hydrological realities that add complexity to the situation and alluded to ways in which the interactions of the legal and hydrological constraints impact each other. I see three things that could vastly simplify the situation for New Mexico. First, quantification of the federally imposed water rights as they apply to ESA, federal reserved rights (including tribes), and aboriginal rights (including the pueblos). Second, adjudication of water rights and priorities throughout the state. Resolving these two things will require significant amounts of time and money. In the meantime the health of the watersheds and the security of the residents of New Mexico will depend on able management of the state's watersheds from the perspective of each watershed as a whole. Rather than making water decisions on the basis of arbitrary political boundaries that have no relationship to the hydrological system, decision-makers must have a way to manage water in the context of the watershed and underlying groundwater system.

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- ⁸ Ibid. 120.
- ⁹ Ibid. 55-58.
- ¹⁰ Getches. 4,6.
- ¹¹ Ibid. 34.
- ¹² Getches. 190. Some states operate under a hybrid system which recognizes some riparian rights and some prior appropriation rights, for example California, Oregon, and Washington.
- ¹³ Ibid. 97-98.
- ¹⁴ Kery. Overview. 10-11.
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- ¹⁸ The New Mexico Office of the State Engineer. Interstate Stream Commission. http://www.ose.state.nm.us/isc_index.html. (Accessed April 2006).
- ¹⁹ Kery. Overview. 8-9.
- ²⁰ Ibid. 10-12. And, Getches. 144-146.
- ²¹ Kery. Overview. 11.
- ²² Ibid. 13-14.
- ²³ The New Mexico Office of the State Engineer. State Water Plan. <http://www.ose.state.nm.us/water-info/NMWaterPlanning/state-water-plan.html>. (Accessed April 2006). 43-44.
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- ²⁵ Ibid. 22.
- ²⁶ Ibid. 24-25.
- ²⁷ Ibid. 26-27.
- ²⁸ Ibid. 14-15.
- ²⁹ Ibid. 18-19.
- ³⁰ Ibid. 30.
- ³¹ Muys, Jerome C. "Approaches and Considerations for Allocation of Interstate Waters." *Water Law, Trends, Policies, and Practice*. Ed. Kathleen Marion Carr and James D. Crammond. American Bar Association, 1995. 313.
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- ³³ Hall. 3.
- ³⁴ *Rio Grande Compact*. March 18, 1938. <<http://wrri.nmsu.edu/wrdis/compacts/compacts.html>> (Accessed April 2006). *Colorado River Compact*. 1922. <<http://www.usbr.gov/lc/region/pao/pdfiles/crcompct.pdf>> (Accessed April 2006).
- ³⁵ Getches. 314.
- ³⁶ Ibid.

³⁷ *Treaty between the United States of America and Mexico relating to the waters of the Rio Grande*. January 16, 1907. (34 Stat. 2953; Treaty Series 455). http://www.internationalwaterlaw.org/RegionalDocs/Rio_Grande.htm (Accessed April, 2006)

Treaty of Guadalupe-Hidalgo. February 2, 1848

<http://www.waterassembly.org/5theplan/5.6.5.theplan_supportdoc_thirdpartydoc.html> (Accessed April 2006).

³⁸ DuMars, Charles, T., Marilyn O'Leary, and Albert E. Utton. *Pueblo Indian Water Rights, Struggle for a Precious Resource*. Tucson: The University of Arizona Press, 1984. 45.

³⁹ Kery. Overview. 37.

⁴⁰ Kery. Legal Issues. 11.

⁴¹ Kery. Overview. 37-41.

⁴² Kery. Overview. 39-40.

⁴³ Kery. Legal Issues. 12.

⁴⁴ Getches. 308.

⁴⁵ DuMars. 29-41. Contains an overview of Spanish and Mexican water law. Another source for information on water rights under Spanish and Mexican sovereignty is Meyer, Michael C. *Water in the Hispanic Southwest, a Social and Legal History 1550-1850*. Tucson: The University of Arizona Press, 1984.

⁴⁶ Kery. Legal Issues. 2.

⁴⁷ Chestnut, Peter. "Water and Growth Issues for Tribes and Pueblos in New Mexico, Legal Considerations." December, 2000. New Mexico Water Resources Research Institute, New Mexico State University, Las Cruces, NM. <<http://wrri.nmsu.edu/publish/watcon/proc45/chestnut.pdf>> (Accessed April 2006.) 8. See also, Getches. 12-13.

⁴⁸ Hall. 17.